Kodak

i55 / i65 Scanners

User's Guide

A-61527

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1 Introduction

The *Kodak* i55 and i65 Scanners are compact document scanners perfect for workgroups and other decentralized applications. These scanners have a 50-page automatic document feeder that scans 32 pages per minute at 200 dpi (bi-tonal), including a flatbed for non-feedable documents. For your image processing needs, the TWAIN Datasource and ISIS Driver are included with the *Kodak* i55/i65 Scanners.

- *Kodak* i55 Scanner — desktop simplex color scanner
- *Kodak* i65 Scanner — desktop duplex color scanner

This User's Guide provides information and procedures for the *Kodak* i55 and i65 Scanners using the TWAIN Datasource and ISIS Driver. The information in this guide is for use with both scanner models unless otherwise noted.

Scanner features

- Easy to use
- Small, compact size
- Scans up to 21.6 x 86 cm (8.5 x 34 in.) using the automatic document feeder when the host PC is configured with adequate memory. See the section entitled, “System requirements” for more information.
- Scans up to 8.5 x 11.69 inches / A3 using the flatbed
- Scans 32 ppm (200 dpi, bi-tonal, duplex, portrait orientation) letter-size documents
- Choose color, bi-tonal, grayscale, simultaneous bi-tonal and grayscale, or simultaneous bi-tonal and color
- Easy cleaning and maintenance
- Output resolutions from 75 to 600 dpi
- Bundled ISIS and TWAIN drivers
- Length checking based on multi-feed detection
- Choice of USB 2.0 or SCSI II interface

Safety information

MSDS

Material Safety Data Sheets (MSDS) for chemical products are available on the Kodak website at: www.kodak.com/go/msds. When accessing the MSDSs from the website, you will be required to provide the catalog number of the consumable you want the Material Safety Data Sheet for. See the section entitled, “Supplies and consumables” later in this guide for a listing of supplies and catalog numbers.

Safety precautions

- Use only the power supply that was provided with the scanner (Sino-American model SA60-24).

IMPORTANT: Do not substitute another power supply model or another manufacturer’s power supply.

- Be sure to use the proper AC power source.
- Avoid danger of electric shock. Only use the scanner and power supply indoors in a dry location.
- Do not install the scanner in a humid or dusty area.

User precautions

Users and their employer need to observe the common sense precautions applicable to the operation of any machinery. These include, but are not limited to, the following:

- Do not wear loose clothing, unbuttoned sleeves, etc.
- Do not wear loose jewelry, bracelets, bulky rings, long necklaces, etc.
- Hair length should be kept short, using a hair net if needed, or tying long hair up in a bundle.
- Remove all other loose objects from the area that could be drawn into the machine.
- Take sufficient breaks to maintain mental alertness.
- Follow the recommended Kodak cleaning procedures. Do not use air, liquid or gas spray cleaners. These cleaners only displace the dust, dirt or debris to another location within the scanner, which could cause the scanner to malfunction.

Supervisors should review their practices and make compliance with these precautions as a part of the job description for operation of the *Kodak* i55/i65 Scanners or any mechanical device.

Safety and regulatory agency approvals

The *Kodak* i55 and i65 Scanners conform to applicable national and international product safety and electronic emission regulatory requirements. This includes, but is not limited to, the following:

Country or Region	Safety Approval	Safety Mark	Electromagnetic Compatibility	EMC Mark
Australia			AS/NZS CISPR 22 Class B	C-Tick
Canada	CAN/CSA-C22.2 No. 60950	C - UL	Canada ICES - 003 Issue 3 Class B	
China	GB4943	CCC “S&E”	GB 9254 Class B GB 17625.1 Harmonics	CCC “S&E”
European Union		CE	EN 55022 ITE Emissions Class B EN61000-3-2 Powerline harmonics EN 61000-3-3 Flicker EN 55024 ITE Immunity	CE
Germany	EN 60950	TUV GS		
International	IEC 60950		CISPR 22 Class B	
Japan			VCCI Class B	VCCI
Taiwan			CNS 13438 Class B	BSMI
United States	UL 60950	UL	CFR 47 Part 15 Subpart B FCC Class B	

Environmental information

- The *Kodak* i55 and i65 Scanners are designed to meet worldwide environmental requirements.
- Guidelines are available for the disposal of consumable items that are replaced during maintenance or service; follow local regulations or contact Kodak locally for more information.
- The *Kodak* i55 and i65 Scanners contain lead in the circuit board solder, glass lens and mercury in the lamps. Disposal of this material may be regulated due to environmental considerations. For disposal or recycling information, contact your local authorities or, in the USA, visit the Electronics Industry Alliance website: www.eiae.org.
- The product packaging is recyclable.
- The *Kodak* i55 and i65 Scanners are Energy Star compliant and are shipped from the factory with the default time set to 15 minutes.

EMC statements

United States

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for additional suggestions.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Where shielded interface cables have been provided with the product or specified additional components or accessories elsewhere defined to be used with the installation of the product, they must be used in order to ensure compliance with FCC regulation.

Japan

This is a Class B product based on the standard of the Voluntary Control Council for interference by information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

Acoustic emission

Maschinenlärminformationsverordnung – 3, GSGV
Der arbeitsplatzbezogene Emissionswert beträgt <70 db(A).

[Machine Noise Information Ordinance — 3, GSGV
The operator-position noise emission value is <70 dB(A).]

Power system connection

This product is also designed for Norwegian IT power system with phase-to-phase voltage 230V.

2 Getting Started

What's in the box

Before you begin open the box and check the contents:

- *Kodak* i55 or i65 Scanner (with input tray and flatbed cover)
- Output tray
- Feed module
- USB 2.0 cable
- Power supply
- Power cord bundle(s)
- Welcome Folio which includes:
  - Bundled installation and application CD(s)
  - Registration sheets
  - Printed User's Guide, English
  - Quick Tips Guide
  - Quick Installation Guide
  - Service Contact sheets
  - Miscellaneous flyers

System requirements

Following is the recommended system configurations to run *Kodak* i55 and i65 Scanners.

Optimum requirements to match scanner capabilities:

- Intel Pentium IV, 2.5 GHz processor:
  - 512 MB RAM for scanning documents no longer than 35.56 cm (14 in.) in length in color, grayscale, or bi-tonal at 400 dpi.
  - 2 GB RAM for scanning documents no longer than 86.36 cm (34 in.) in length in color, grayscale, or bi-tonal at 400 dpi.
  - 2 GB RAM for scanning documents no longer than 35.56 cm (14 in.) in length in color, grayscale, or bi-tonal at 600 dpi.
  - 3 GB RAM for scanning documents no longer than 86.36 cm (34 in.) in length in grayscale or bi-tonal at 600 dpi
- USB port 2.0 (best) or SCSI II
- Windows 2000 Professional or Windows XP (Professional/Home)
- 15 MB free hard disk space is required to install the drivers. Applications and image storage will require additional hard disk space.
- CD-ROM drive

Minimum requirements to allow basic scanner operation:

The following minimum requirements may not achieve the rated speed of the scanner.

- Intel Pentium III, 1 GHz processor, 512 MB RAM
- USB port 1.1 or SCSI
- Windows 2000 Professional, Windows ME, Windows 98SE, or Windows XP (Professional/Home)
- 15 MB free hard disk space is required to install the drivers. Applications and image storage will require additional hard disk space.
- CD-ROM drive

NOTE: The ability to scan longer documents or very high resolutions is somewhat dependent on the available host PC memory. Differences in memory use between scanning applications may account for some issues scanning a long document at very high resolution. While the memory guidelines above are conservative, your experience may vary depending on your host PC configuration and scanning application.

Installation

Unpack the scanner carefully and check the contents. If any items are missing or damaged, contact your authorized dealer immediately.

Site specifications

Place the scanner:

- in a clean area with temperature and relative humidity typical of an office environment.

IMPORTANT: Only use the scanner and power supply indoors in a dry location.

- in a location out of sunlight. Direct exposure to sun or excessive heat may cause damage to the unit and will affect image quality.
- on a stable, level work surface capable of supporting 7.5 kg (16.5 lbs.). Tilted or uneven surfaces may cause mechanical or paper-feeding problems.
- within 1.52 meters (5 feet) of an easily accessible electrical power outlet.

Keep the scanner box and packing materials for shipping purposes.

Installing the scanner

Install the scanner in the following order:

1. Install the *Kodak* Driver Software.
2. Verify that you have either a USB or SCSI connection and connect the cables between your scanner and the PC.
3. Connect the power cord to the scanner.
4. Set up the input and output trays.
5. Unlock the scanner.
6. Turn on the scanner.
7. Restart the PC (required for SCSI II connection) to finalize the *Kodak* Driver Software installation.
8. Install other supplied applications (optional).

IMPORTANT:

- ***Install the Kodak Driver Software on the host PC before you connect the scanner.***
- ***For best performance, use USB 2.0 when possible.***

Installing the *Kodak* Driver Software

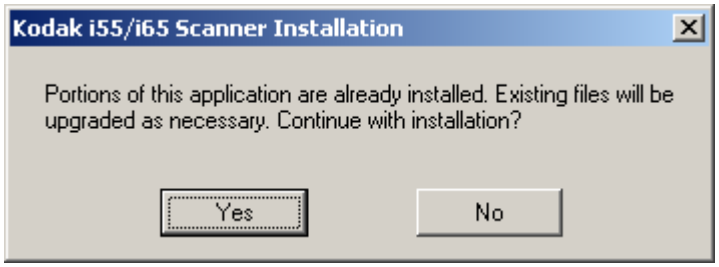
Install the *Kodak* Driver Software ***before*** connecting the scanner to your PC. The *Kodak* Driver Software consists of the *Kodak* Scanner Drivers using the TWAIN Datasource and ISIS Driver to be used with either USB and SCSI II connections.

1. Insert the *Kodak* i55/i65 Scanner Installation CD in the CD-ROM drive. The installation program starts automatically.

   NOTE: If the CD does not start automatically, open the *My Computer* icon on your desktop. Double-click the icon for your CD-ROM drive, then double-click on Setup.exe.

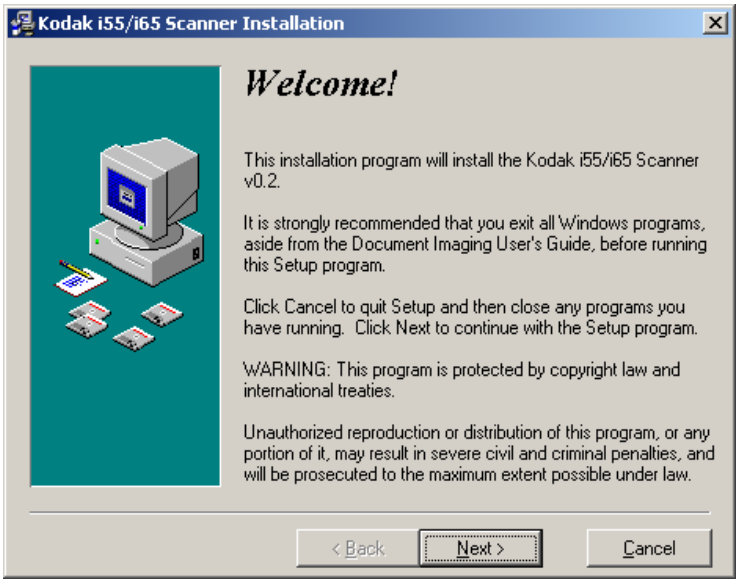
2. Select **Install Scanner Software.**

   The *Kodak* i55/i65 Scanner Installation window may be displayed:

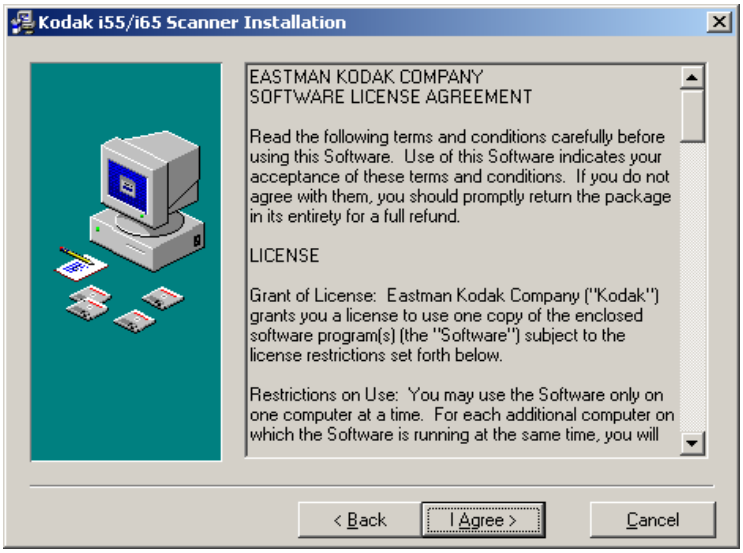


NOTE: This window may or may not be displayed depending upon what was previously installed on your computer.

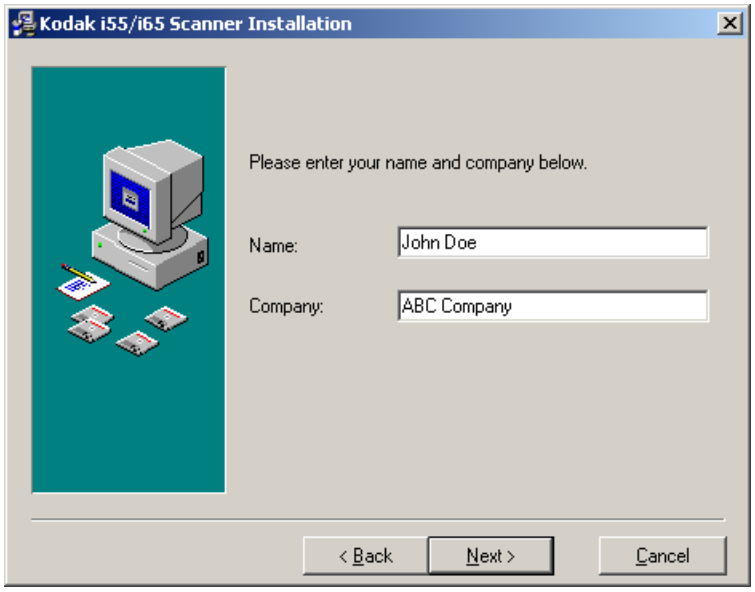
3. Click **Yes**. The Welcome window will be displayed:



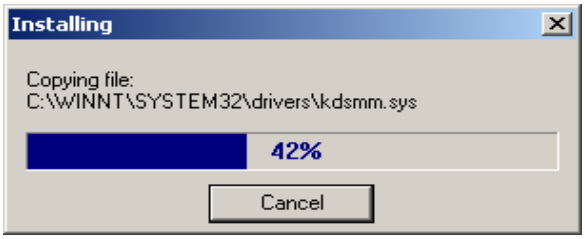
4. Click **Next**. The Software License Agreement window will be displayed:



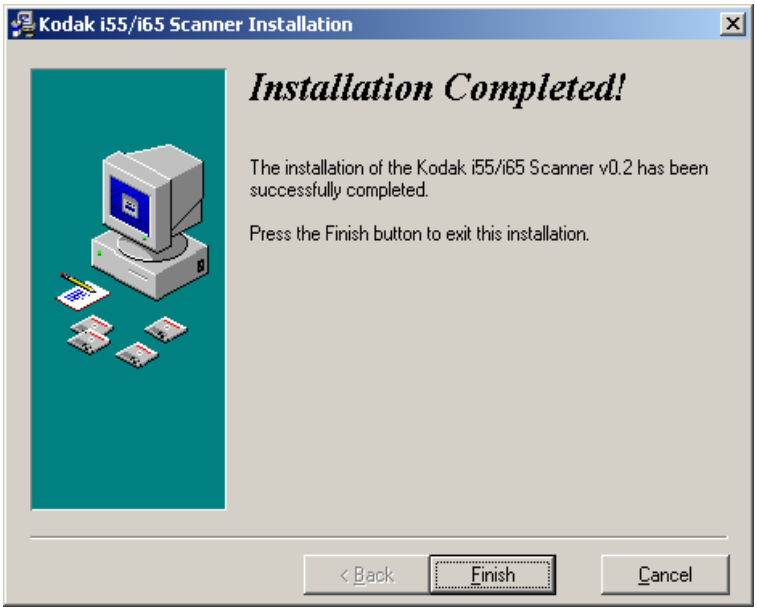
5. After reading the agreement, click **I Agree** to continue.



6. Enter your name and company name and click **Next**.



7. When the installation is complete, the following dialog box will be displayed:



8. Click **Finish**.

Making connections

The *Kodak* i55/i65 Scanners can accommodate either a USB or SCSI connection. Depending upon whether you are connecting USB or SCSI, go to the one of the following sections.

USB connections

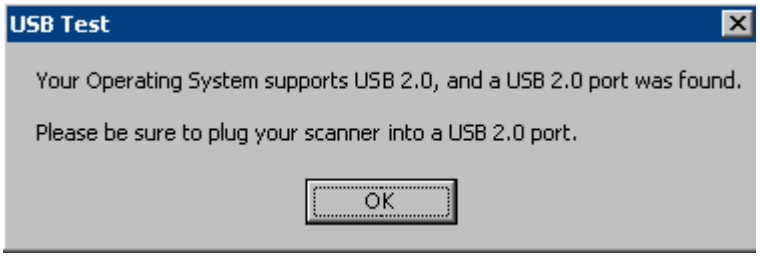
Verifying for a USB port

After you install the *Kodak* Driver Software, check for the presence and version of a USB port.

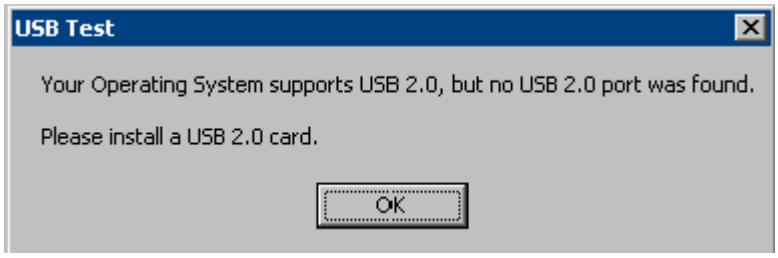
- Select **USB Test.**

The USB verification tool will check your operating system and hardware capability to determine if you need to install a USB card.

- If a functioning USB 2.0 port is present, the following window will be displayed. Click **OK** and proceed with the next section.



- If your PC does not have a USB 2.0 port installed, you should install a USB 2.0 Accessory card..:



- If you get any message other than either of the messages above, see the section entitled, “USB connection issues” in Chapter 6, *Troubleshooting*.

Connecting the USB cable

IMPORTANT: If you have not installed the Kodak Driver Software, do that now before proceeding.

The following instructions explain the connection of the USB cable between your scanner and PC. You need to identify the USB port on your PC. If you installed a USB 2.0 card, use that port, otherwise use the USB port on your PC.

The USB cable supplied with your scanner has two different ends.

1. Attach the B end of the USB cable to the scanner USB port, located on the back of the scanner.

2. Attach the A end of the USB cable to the proper USB port on your PC.

SCSI connections

IMPORTANT: Be sure the PC is off while you are doing the steps in the "SCSI connections" section.

Connect the SCSI signal cable as shown below.

1. Attach a SCSI cable to the SCSI port.

   NOTE: There are two SCSI ports on the scanner. This is a SCSI II pass-through connection. Plug the SCSI cable into either port using a 50-pin, high-density connector to connect to the scanner.

2. Attach the other end of the SCSI cable to your PC SCSI port.

SCSI interface device ID

Kodak does not recommend several devices on a SCSI chain with our scanner. However, if there is more than one SCSI device on the chain, you may need to adjust the SCSI ID selector on the scanner. This selector assigns a specific device ID to the scanner. If the assignment conflicts with an existing SCSI device, select a new ID.

NOTE: The factory SCSI ID setting for the scanner is 6. SCSI ID 0 is usually assigned to an internal hard disk drive and 7, 8, and 9 are used for diagnostic purposes. The scanner will not operate properly if the SCSI ID is set to 7, 8, or 9.

- Using a suitable tool, turn the SCSI ID selector switch until the arrow points to the desired ID number.

Setting the SCSI terminator

The scanner comes with a built-in SCSI terminator. The terminator ON/OFF switch is located on the scanner between the SCSI cable connectors.

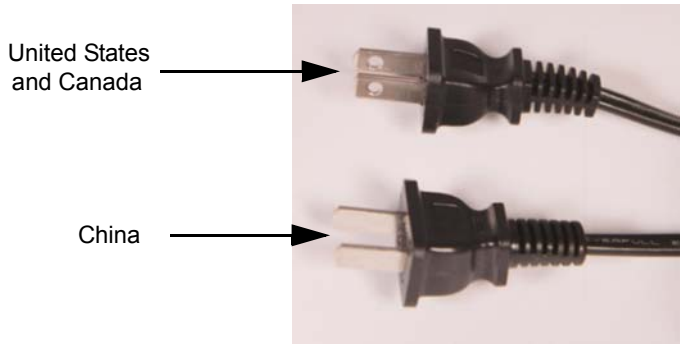
- If the scanner is the only or the last device in a SCSI chain, place the terminator switch in the ON position.
- If the scanner is to be located between the computer and another SCSI device, place the terminator switch in the OFF position. Kodak does not recommend the scanner to be connected between devices in a SCSI chain.

Connecting the power cord to the scanner

When the drivers have been installed, connect the power supply and power cord to the scanner. Make sure that the power outlet is located within 1.52 meters (5 feet) of the scanner and is easily accessible. Before proceeding, be sure the power to the scanner is off.

1. Select the appropriate AC power cord for your region from the supply of power cords packed with your scanner.

   NOTE: The power cord for the United States/Canada and China look very similar. The difference is the United States/Canadian power cord has holes in the prongs, and the Chinese power cord does not.



2. Attach the power cord for your power type to the power supply.

3. Plug the output power cord from the power supply into the power port on the scanner.

4. Plug the input power cord into the wall outlet.

Set up the input and output trays

Detailed procedures and illustrations for installing and adjusting the input and output trays can be found in Chapter 3, *Using the Scanner*. Following is a brief outline of these procedures to get you started.

1. Lift the input tray to about a 45° angle.
2. Pull the input tray wire leg down.
3. Place the wire leg on the top of the clips on the flatbed cover and press down to snap the wire leg into the clips.
4. Install the output tray by inserting the three tabs on the output tray into the three slots on the automatic document feeder.

Unlocking the scanner

The scanner has a shipping switch that locks the scanner's flatbed camera to avoid causing damage during transportation.

- Unlock the shipping switch before you power up the scanner.
- Lock the shipping switch before moving the scanner to a new location. See the section entitled, "Locking the scanner" in Chapter 5 for procedures.

To unlock the scanner:

1. Place the scanner in an upright position on its front.
2. Unlock the scanner by moving the shipping switch (located on the bottom of the scanner) down into the unlocked position.

3. Place the scanner back in its normal position.

Turning the scanner on/ finalizing *Kodak* Driver Software installation

When the USB and/or SCSI cable and power connections have been made, and the *Kodak* Software Drivers have been properly installed, the installation will be complete when the PC and the scanner have been powered up in the proper sequence.

1. Turn off the host PC.
2. Use the power switch on the back of the scanner to turn the scanner on (I).

When you turn on the scanner, the scanner goes through a series of self-tests, the green LED indicator will flash. When it is finished and ready to scan, the indicator will stop flashing and stay lit. If the scanner does not pass the self-test, refer to Chapter 6, *Troubleshooting.*

3. Turn on the host PC.

   The following screens are based on Windows 2000. However, depending on the computer operating system you are using, these screens may be different.

   Your operating software will now auto detect the scanner.

4. To test the scanner, refer to the section entitled “Verifying your scanner installation” in Chapter 3.

   If the driver installation was unsuccessful, see the section entitled, “Scanner not working” in Chapter 6, *Troubleshooting.*

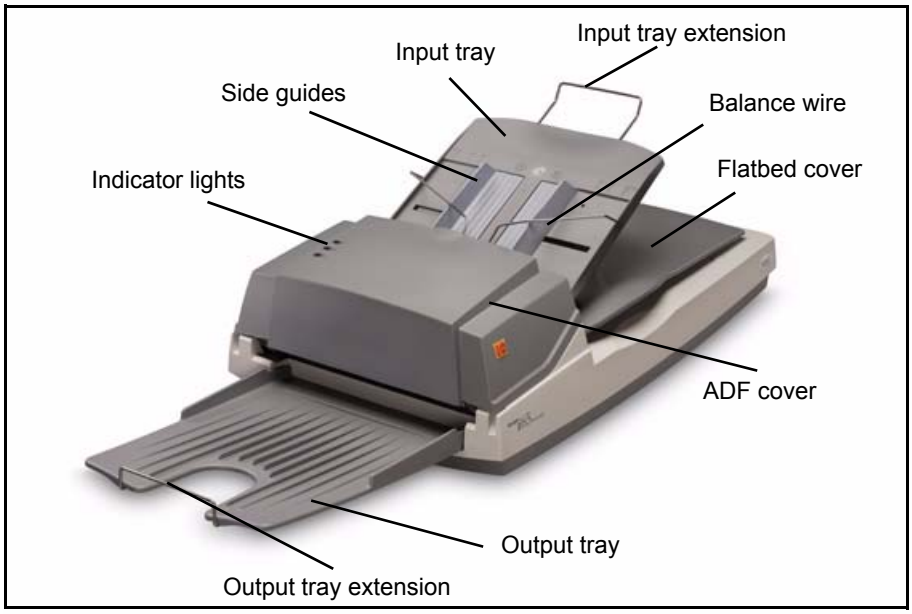
Installing application software

The *Kodak* Scan Validation Tool is installed by default when installing the *Kodak* Driver Software. Refer the section entitled, “Verifying your scanner installation” in Chapter 3 for instructions and use.

Other scanning applications are also provided. If you choose to use one of these applications, or another image capture application not provided, see the User Guide’s provided with these applications for instructions on how to install and use the software.

Scanner components

Front view



Indicator lights — these indicator lights indicate the conditions of the scanner. See the section entitled “Indicator lights” later in this section.

Side guides — slide the guides in or out to accommodate the document size you want to scan. The balance wire must be lifted up before you can adjust the side guides.

Input tray — place documents face-down in the input tray for scanning. The input tray holds up to 50 documents.

Input tray extension — pull out to accommodate documents longer than 36 cm (14 in.).

Balance wire — place the documents to be scanned in the input tray and lower the balance wire to keep the documents in place and aid in document feeding.

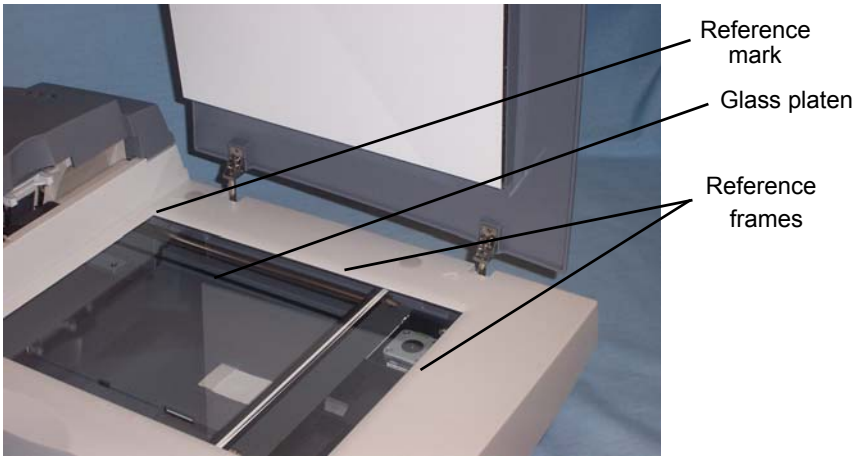
Flatbed cover — lift this cover to access the flatbed. The flatbed cover can be easily lifted up to provide more clearance for scanning thick books on the flatbed.

ADF cover — the ADF (automatic document feeder) lifts up to provide access for maintenance and jam clearance.

Output tray — collects the scanned documents.

Output tray extension — pull out this extension when scanning documents longer than A4 (8.5 x 11 inches).

Under the flatbed cover

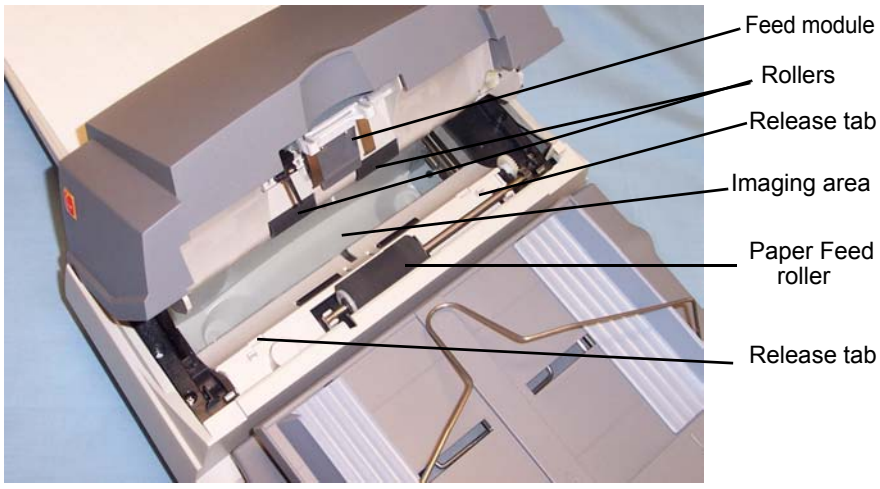


Reference mark — position the document you want to scan up against the reference mark to ensure the entire document will be scanned.

Glass platen — place the document face-down on the glass platen for scanning.

Reference frames — these reference frames, located around the perimeter of the glass platen, provide a reference as to where to align the document on the flatbed.

ADF Inside view



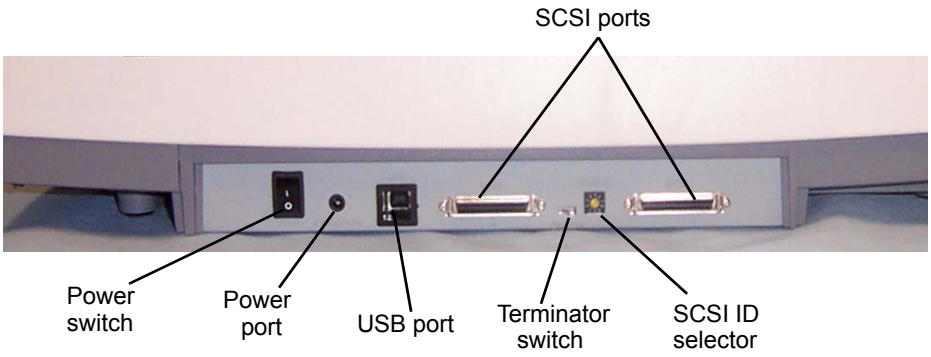
Feed module — provides smooth document feeding and separation of various sizes, thicknesses and textures of documents.

Rollers — provides smooth document feeding of various sizes, thicknesses and textures of documents.

Release tabs — use these tabs to release the Paper Feed roller cover when you change the Paper Feed roller.

Imaging area — for optimum image quality keep the imaging area clean.

Back view



Power switch — turns the scanner on and off.

Power port — connects the power cord to the scanner.

USB port — connects the scanner to the PC.

SCSI ports — two 50-pin, high-density connectors provide SCSI connections to the scanner.

Terminator switch — allows you to turn SCSI termination on or off if the scanner is at the middle or the end of a SCSI chain.

SCSI ID selector — allows you to assign a specific SCSI device ID to the scanner.

Indicator lights

There are three indicator lights on the ADF.

When you first turn on the scanner, all three lights illuminate momentarily and then flash as the scanner goes through a series of self-tests. The lights will flash accordingly.

Power (green) — illuminates and stays on for power.

Ready (green)

- flashes when the lamps are warming up
- illuminates when the scanner is ready to scan
- off when the scanner is in Standby mode

Error (red) — illuminates or flashes when there is an error condition.

NOTE: When the scanner is in Energy Star Saving mode, all the indicators will be off.

3 Using the Scanner

Turning the scanner on and off

- Press the power switch on the back of the scanner to turn the scanner on (I) or off (O).

When you turn on the scanner, it will go through a series of self-tests. When completed, the green indicator light will remain on and constant.

Adjusting the input tray

Documents are placed into the input tray to be scanned through the automatic document feeder.

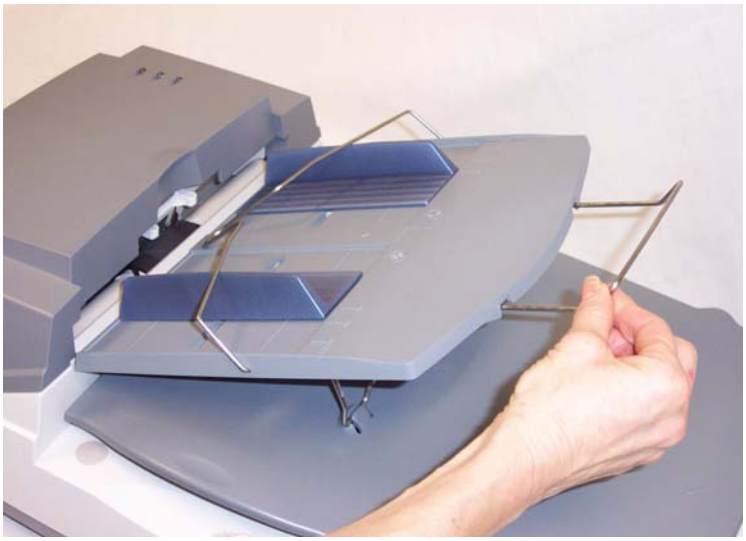
To adjust the input tray:

1. Lift the input tray to about a 45° angle.
2. Pull the input tray wire leg down.
3. Place the wire leg on the top of the clips on the flatbed cover.

4. Press down slightly on the input tray to snap the wire leg into the clips.

To accommodate longer documents (longer than 36 cm / 14 in.):

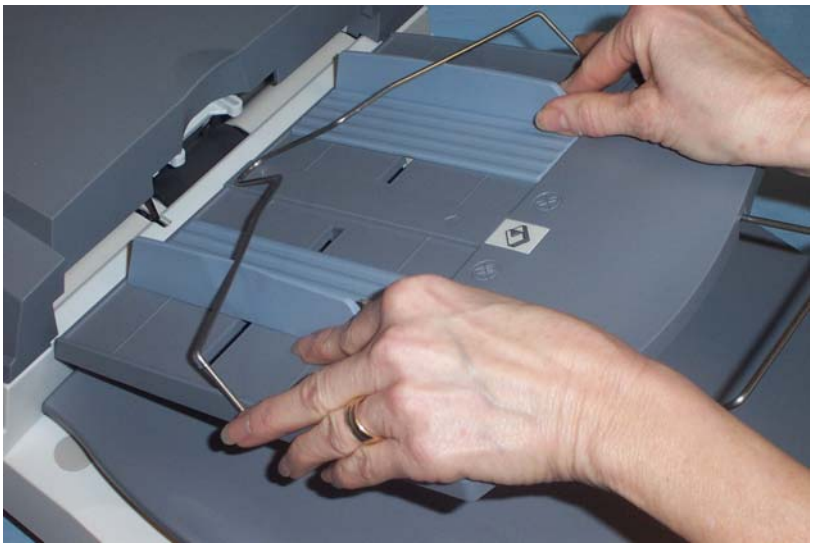
- Pull the input tray extension wire out to the desired length.



The input tray has side guides that can be adjusted to accommodate the size of the documents you are scanning.

To adjust the side guides:

- Move the side guides in/out to the desired position.

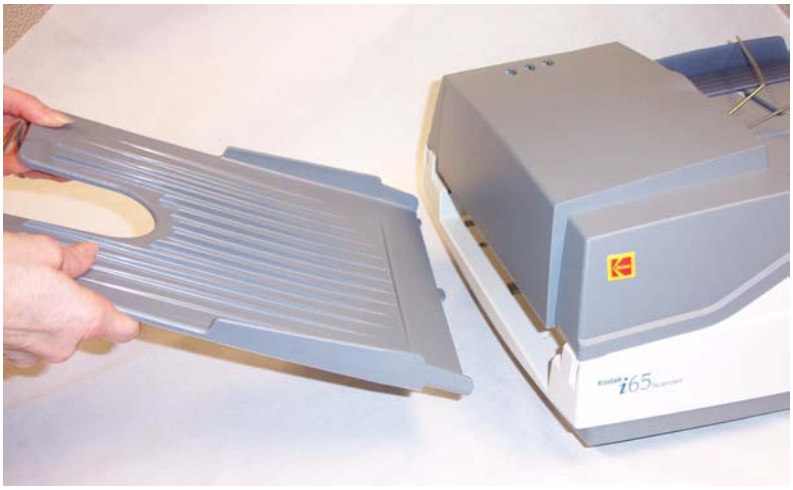


Installing and adjusting the output tray

The output tray receives scanned documents from the automatic document feeder after they are scanned. Before scanning documents, be sure the output tray is properly installed and adjusted.

To install and adjust the output tray:

1. Hold the output tray at about a 30° angle.
2. Insert the three tabs on the output tray into the three slots on the automatic document feeder.



3. Lower the tray to lock it into place.
4. Pull the output tray extension wire out to the desire length.

Lifting the flatbed cover

If you have a large book you want to scan (i.e., telephone book), you can lift the flatbed cover to provide easy access to the flatbed.

Start and stop scanning

Before you start scanning, make sure the scanner is on and ready for operation, which is indicated by the green indicator light being on and constant.

Scanning is controlled by software developed for your application. To start and stop scanning, refer to the documentation provided with your application software.

Document preparation

- A batch of documents to be fed into the scanner must be arranged so the leading edges of all documents are aligned and centered in the input tray; this allows the feeder to introduce documents into the scanner one at a time.
- Staples and paper clips on documents may damage the scanner and documents. Remove all staples and paper clips before scanning.
- Documents should be in good condition.

Paper Weights: 60 g/m^2 to 105 g/m^2 (16 to 28 lbs.)

Minimum Document Size: 9.4 x 14 cm (3.7 x 5.5 in.)

Maximum Document Size:

- **Automatic Document Feeder** — 21.6 x 86 cm (8.5 x 34 in.)

  NOTE: Long Paper mode will scan document lengths from 35.56 cm (14 in.) to 86.36 cm (34 in.) when the host PC is configured with adequate memory (see “System requirements” for more information regarding memory requirements). See Chapter 4, *Image Processing* for more information regarding Long Paper mode.

- **Flatbed** — 21.6 x 29.7 cm (8.5 x 11.69 in.)

Paper Types: Bond, Laser, Inkjet, Offset

NOTE: Chemically coated papers may cause excessive wear/swelling of the rollers.

Paper inks: All inks on the paper must be dry before scanning is started. This includes: Standard offset printing, Inkjet printer, Thermal transfer, Handwriting inks.

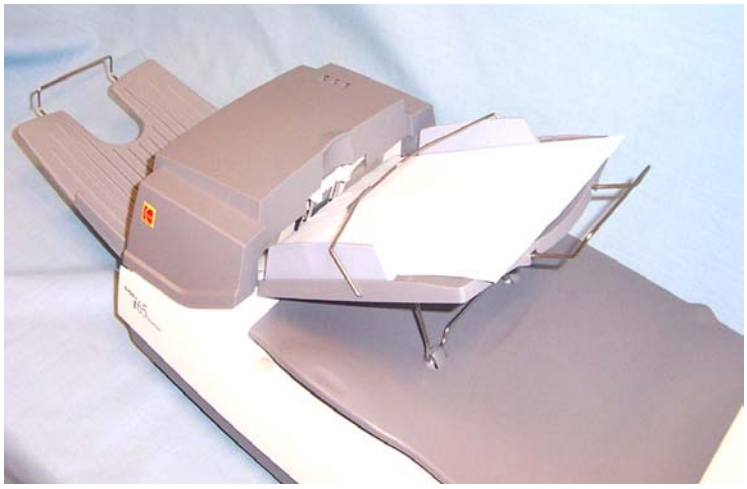
Correction Fluids: Liquid Paper®, Tipp-Ex®, Wite-out®, and other similar correction fluids.

Scanning your documents

Using the ADF

Standard paper size documents should feed easily through the scanner.

- Lift the balance wire and place the documents you want to scan face-down into the input tray of the scanner.



Using the flatbed

Use the flatbed to scan documents that cannot be scanned using the ADF.

1. Lift the flatbed cover.
2. Place the document face down on the glass platen.
3. Position the document with the upper right corner aligned with the reference mark.

Verifying your scanner installation

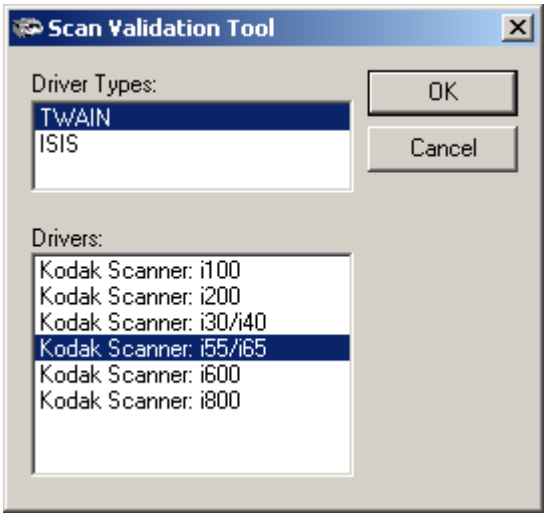
Kodak provides a test application called the *Kodak Scan Validation Tool*. This section describes how to use this tool to perform a basic scan function which includes feeding paper and viewing captured images on your PC.

The following steps help you to verify that your scanner installation was successful. If this procedure is successful, you will be ready to use your scanner. If it is not successful, go back and review the installation procedures outlined in the section entitled, “Installing the scanner” in Chapter 2.

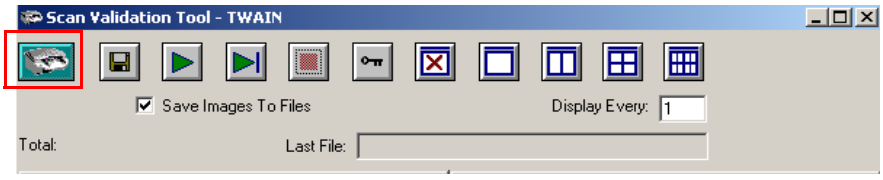
NOTE: Detailed descriptions of all the options on the Scan Validation Tool dialog boxes can be found in Chapter 4, *Image Processing*.

Before you begin, be sure the scanner is on and ready to scan.

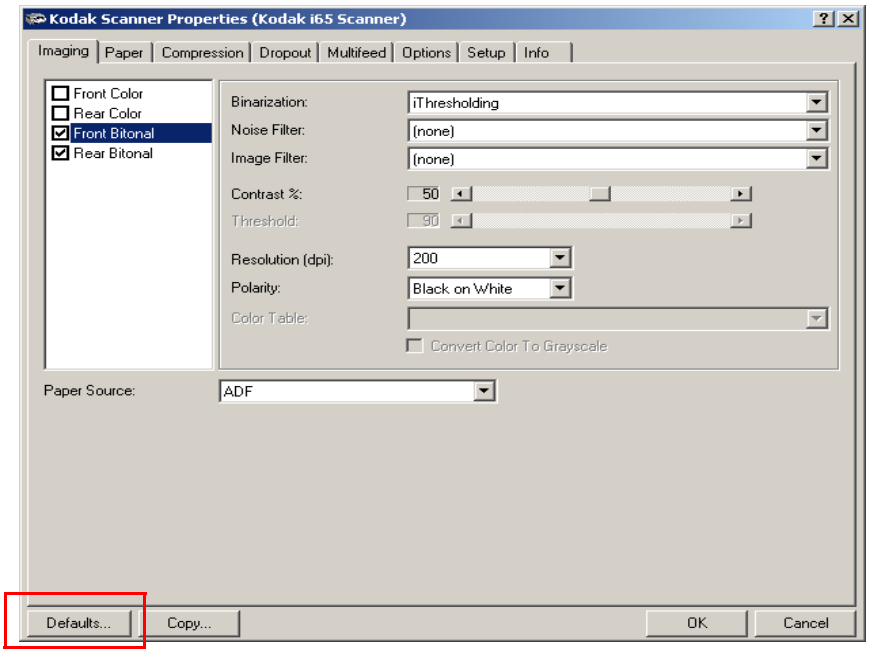
1. Select **Start>Programs>Kodak>Document Imaging>Scan Validation Tool**. The Scan Validation Tool dialog box will be displayed. Select **TWAIN** (or **ISIS**) for the Driver Types and ***Kodak* Scanner i55/i65** as the Driver. The Scan Validation Tool dialog box will be displayed.



2. Click the Scanner icon to access the Kodak Scanner Properties dialog box.



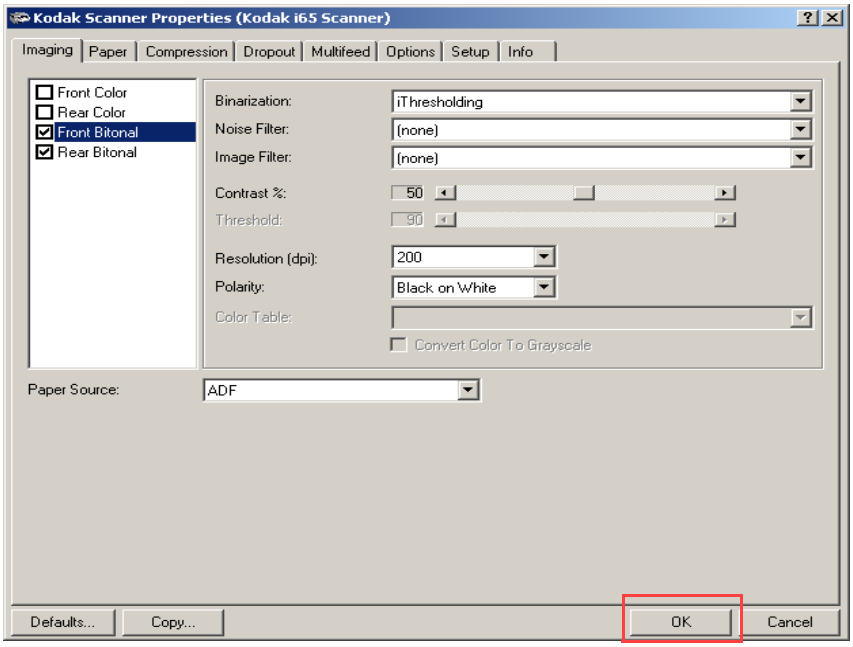
3. Select **Defaults**.



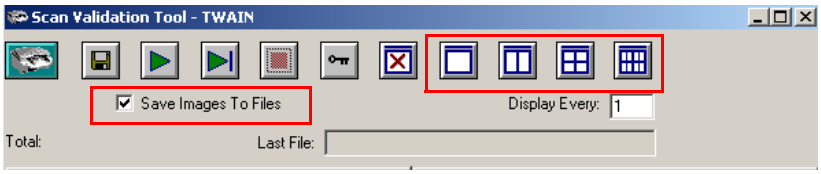
A confirmation message, ***Reset all values to factory defaults?*** will be displayed.

4. Click **OK**. This resets the software to the factory-installed default settings. The factory default settings are set to capture bi-tonal images. For a *Kodak* i55 Scanner one side of the document will be scanned. For a *Kodak* i65 Scanner both sides of the document will be scanned.

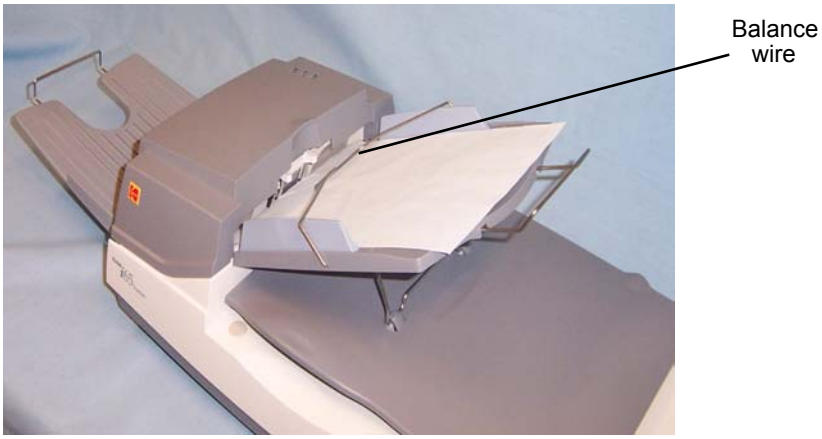
5. Click **OK** on the Kodak Scanner Properties dialog box.



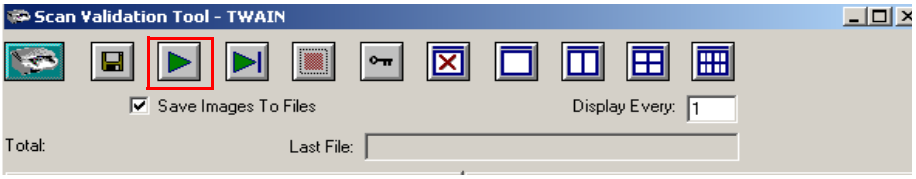
The Scan Validation Tool screen will be displayed. Be sure **Save Images To Files** is checked and click one of the four icons to display the images in the Scan Validation Tool window



6. Lift the balance wire and place some sample documents face-down into the input tray of the scanner.



7. Click the **Start** button on the Scan Validation Tool.



The documents will be scanned and displayed in the Scan Validation Tool window.

NOTE: If the scanner is in lamp saver mode, a message will be displayed that the lamps need sufficient time to warm up.

After the images have been displayed, your scanner installation verification is completed.

8. Click the Close box to exit the Scan Validation Tool.

Viewing test images

The images you scanned can be found in the TWAIN folder on the C drive. Files will be named using the following naming convention: **image0000001A.jpg** is a front image; **image0000001B.jpg** is a back image. Double-click on this file to open and view the captured image.

Because factory default settings were used, the image quality may not be optimized to meet your needs. To learn more about image processing features, go to Chapter 4, *Image Processing*. The *Image Processing* chapter provides detailed descriptions of the available image processing features.

When testing has been completed, delete the test images.

Application software

Some scanning applications are available on the CDs packed with your scanner.

You may also use other capture applications. See the User's Guide provided with these applications for instructions on how to use the software.

4 Image Processing

Overview

This chapter introduces concepts that may be new to many users. The *Kodak* i55 and i65 Scanners provide the ability to process scanned images to improve their quality. Using these features the scanner can sometimes make the scanned image look better than the original document. Basic image processing concepts are reviewed in this chapter to help you take advantage of these powerful features.

Image processing refers to several separate features of the scanner that allow you to automatically adjust each image in a certain way that may improve the resulting images. Common examples of image processing features are correcting any skew in the fed document, cutting the edges of the image off to remove any unneeded border or cleaning up extraneous “noise” on the image. The idea is to do this automatically so you can get better images with a minimum amount of rework.

The information that follows describes the image processing features by walking you through the Scan Validation Tool. The same options should be available on the user interface of the software application you are using (i.e., *Kodak* Capture Software). All fields on the Scan Validation Tool are described in this chapter.

Common terms

Following are a few common terms that are used throughout this chapter:

Bi-tonal or Binary — black-and-white.

Color — full color image, grayscale is derived from the color scan.

Simplex — indicates that only one side of the document (the front side) will be scanned, creating a single page image.

Duplex — indicates that both sides of the document will be scanned, creating two page images.

Cameras — it is important to understand the concept of “cameras”, the component in the scanner that is used to scan your documents.

The *Kodak* i55 Scanner is a simplex scanner. The camera has the ability to separate color and bi-tonal/binary data simultaneously. This means it scans one-sided documents; a front color image and a front bi-tonal/binary image, allowing you to capture one side of a document either in color/grayscale or black-and-white at the same time.

The *Kodak* i65 Scanner is a duplex scanner. The cameras have the ability to separate color and bi-tonal/binary data simultaneously. This means it scans both sides of a two-sided document; a front color image, a rear color image, a front bi-tonal/binary image, and a rear bi-tonal/binary image, allowing you to capture both sides of a document in either color/grayscale, black-and-white, or a combination of color/grayscale and black-and-white.

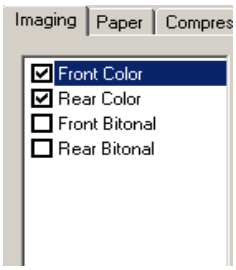
When you use the Kodak Scan Validation Tool, you will need to select which camera(s) you want to use to scan your document to get the desired results. You can use the following examples as a guide when making camera selections.

Making camera selections

When you launch the *Kodak* Scan Validation Tool, you will be making selections on the dialog boxes to set up your images for scanning test documents. Both TWAIN and ISIS have camera selection boxes that refer to the cameras within the scanners. Following are some examples of choosing the correct camera for the desired results. For the purpose of these examples, the TWAIN Datasource has been used.

Example 1: scanning a two-sided color document both sides in color

If you want to scan a two-sided color document, make your camera selections as follows:



Camera selection

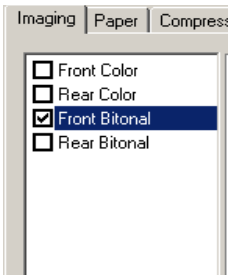
Result - Side 1

Result - Side 2

- Select both **Front Color** and **Rear Color.** Depending on which camera (in this example, **Front Color**) is highlighted, will depend on which side of the document is scanned first. The result is two images in color.

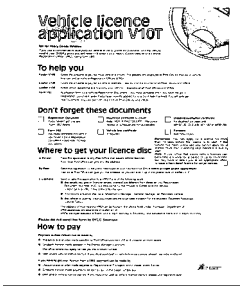
Example 2: scanning a two-sided color document, front side only in bi-tonal

If you want to scan only the front side of a color document in black-and-white, make your camera selections as follows:



Camera selection

Original - Side 1

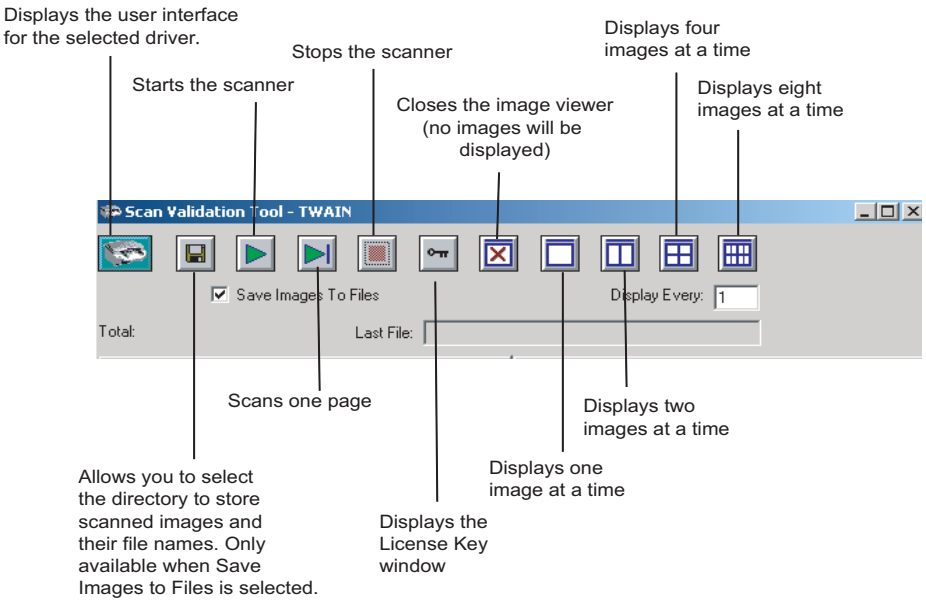


Result - Side 1

- Select and highlight **Front Bitonal.** The resultant image will be the front side of the document in black-and-white.

Scan Validation Tool dialog box

The Scan Validation Tool (SVT) is a diagnostic application that Kodak provides with most Kodak scanners. The SVT user interface allows access to all the features of the scanner and is a good way to verify that the scanner is working properly. The Scan Validation Tool allows you to verify scanner functionality using both the TWAIN Datasource and the ISIS Driver.



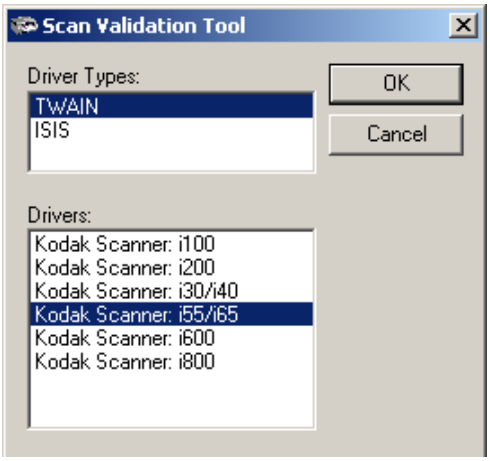
Display Every — enter the sampling rate of the images you wish to display while scanning. For example, to see every image, enter a value of 1. To see every tenth image, enter a value of 10.

Last File — displays the full path and file name for the last stored image.

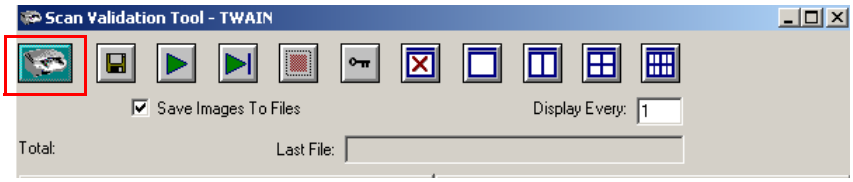
Total — displays the total number of images scanned during the current Scan Validation Tool session.

Starting the Scan Validation Tool

1. Select **Start>Run** or select **Programs>Kodak>Document Imaging>Scan Validation Tool**. Enter the filename or choose **Browse** to locate the **ScanValidation.exe** file.



2. Select **TWAIN** (or **ISIS**) for the Driver Type and the ***Kodak* Scanner i55/i65 Scanner** as the Driver. The Scan Validation Tool dialog box will be displayed.
3. Double-click the Scanner icon to access the Kodak Scanner Properties dialog box.



Using the TWAIN Datasource

The TWAIN Datasource is a piece of software that communicates with your *Kodak* Scanner. It is provided with the i55 and i65 Scanners. Many scanning applications support the TWAIN standard and this datasource can be used to interface with these applications.

This section provides descriptions of the scanner features using options on the TWAIN tabs and how to set these options. If you are using the TWAIN Datasource, follow the procedures in this section to set up your scanner. If you are using the ISIS Driver, see the section entitled, “Using the ISIS Driver” later in this chapter.

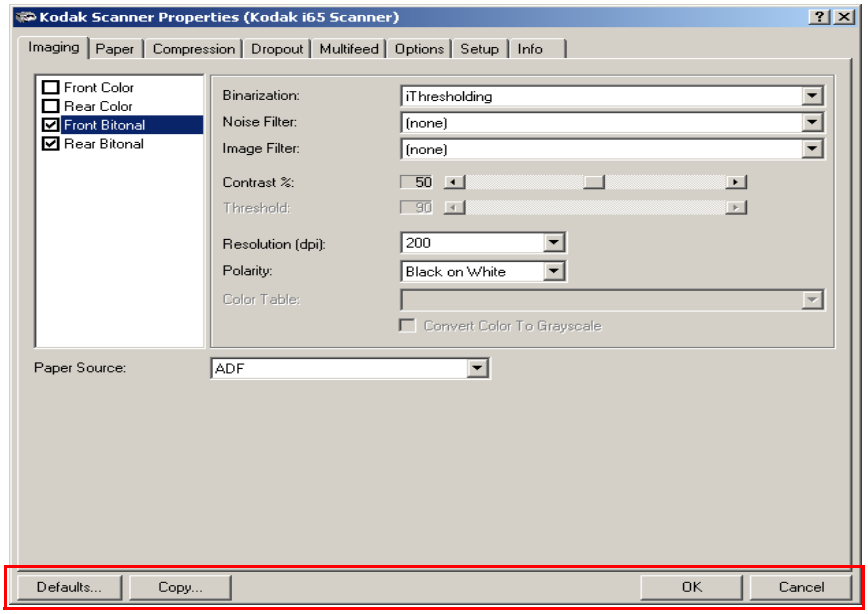
For the purpose of this manual, all displayed dialog boxes assume the features on the *Kodak* i65 Scanner (duplex scanner). If you have a *Kodak* i55 Scanner (simplex scanner) options are limited to simplex scanning only.

Kodak Scanner Properties dialog box

The Kodak Scanner Properties dialog box allows you to review and configure the scanner’s settings. It consists of several tabbed windows each of which will be described within this chapter. Click on each tab to set all the desired values. You do not have to click **OK** until you have made all selections on all of the tabs.

Buttons on the Kodak Scanner Properties dialog box

The buttons at the bottom of the dialog box are described below:



Defaults — when you select **Defaults**, the message ***Reset all values to factory defaults?*** will be displayed. Clicking **Yes** on this message will reset all values on all tabs to the factory default settings.

Copy — copies the settings of the front camera to the rear camera for the selected camera (bi-tonal, color or grayscale). For example, if you have **Front Bi-tonal** highlighted, these values will be copied to the Rear Bi-tonal camera. If you have **Front Color** highlighted, these values will be copied to the Rear Color camera. This option is only available for the *Kodak* i65 Scanner.

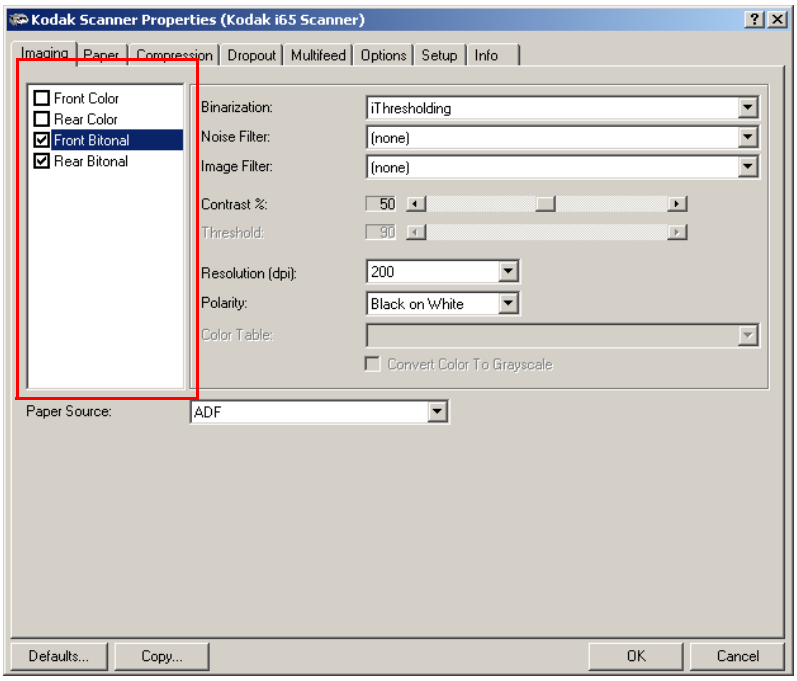
OK — saves the values set on all tabs.

Cancel — closes the dialog box without saving any changes.

The Imaging tab

The Imaging tab allows you to define several image processing values that can be applied to your scanner.

The **Camera Selection box** — lists the available sides (front and rear) of any document where you can define individual image processing values. For detailed information about the cameras, refer to the beginning of this chapter, “Making camera selections”.



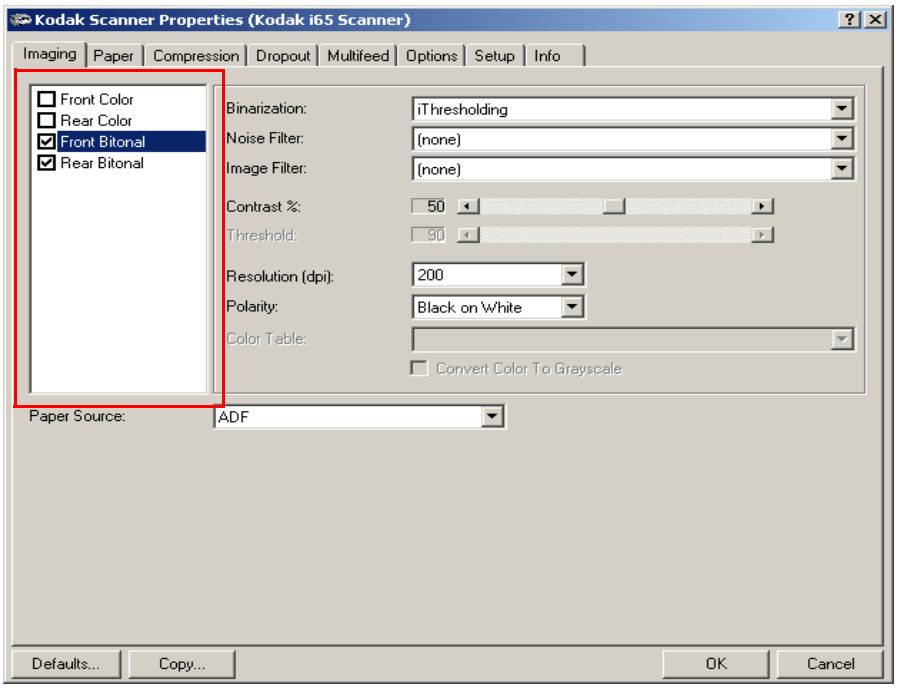
On the *Kodak* i65 Scanner there is a separate camera for each side of the document being scanned. The *Kodak* Scanner drivers allow you to control the camera settings independently. Some settings apply only to bi-tonal images, other settings apply to color images. By selecting the appropriate camera and image type you can control the scanner’s output.

- If you have a *Kodak* i55 Scanner, you can select either **Front Color** and/or **Front Bi-tonal**. This means you can scan the front side of a document depending on how the documents are placed in the feeder and create one or two images.
- If you have a *Kodak* i65 Scanner, you can select any individual camera (i.e., **Front Color**, **Rear Color, Front Bi-tonal** and/or **Rear Bi-tonal**) or any combination of the cameras. This means you can scan the front side, rear side or both sides of a document and create between one and four images.
- Whatever is highlighted in the Camera Selection box determines the values available on the Imaging, Paper, Compression and Dropout tabs.

  NOTE: What is highlighted is not necessarily selected. Make sure that the highlighted area you are making changes to is on the selected camera if you want to see these settings reflected in the final image.

Scanning bi-tonal images

Bi-tonal images are scanned images that are made up of only black-and-white elements. The descriptions below are for bi-tonal images only.



Binarization is the process of converting a grayscale or color image to a bi-tonal image. There are several different methods of performing this conversion. Two of the options Kodak provides are iThresholding and Adaptive Threshold Processing.

These options are applied to grayscale scanned images and output a bi-tonal electronic image. Thresholding and Adaptive Threshold Processing separate the foreground information from the background information even when the background color or shading varies, and the foreground information varies in color quality and darkness. Different types of documents may be scanned using the same image processing parameters and still result in excellent scanned images.

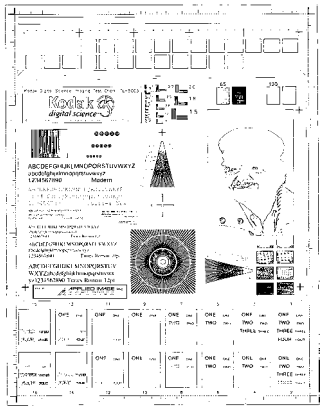
- **iThresholding:** selecting iThresholding allows the scanner to dynamically evaluate each document to determine the optimal threshold value to produce the highest quality image. This allows scanning of mixed document sets with varying quality (i.e., faint text, shaded backgrounds, color backgrounds) to be scanned using a single setting thus reducing the need for document sorting.

  When using iThresholding, only Contrast may be adjusted.

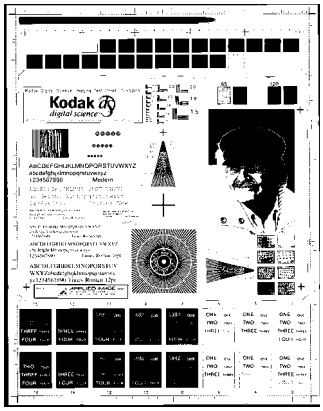
- **Adaptive Thresholding (ATP):** the Adaptive Threshold Processor separates the foreground information in an image (i.e., text, graphics, lines, etc.) from the background information (i.e., white or non-white paper background).

  When using Adaptive Thresholding, Threshold and Contrast may be adjusted.

When Adaptive Thresholding is selected, Contrast values may range from 1 to 100.



Fixed thresholding ATP disabled



ATP enabled

Fixed Processing — used for black-and-white and other high contrast documents. A single level is set to determine the black-and-white transition. The threshold is programmable over the entire density range. Fixed thresholding sets Contrast to 0. If Fixed Processing is selected, Contrast is not available.

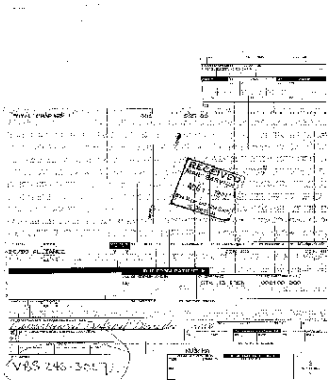
64-Level Bayer Dither, 64-Level 45 Degree Clustered Dot Screen and **64-Level Dispersed Dot Screen** — represent alternative screening options to emulate a grayscale image.

Noise Filter — occasionally small dots or specks appear in the background of a scanned image. These specks increase file compression size and usually contain no image information. Using the Noise Filter on documents containing very fine detail (e.g., the dot on an "i" in 4-point type) may cause information to be lost. It is recommended that you do not use Noise Filter when scanning documents with text smaller than 7-point type.

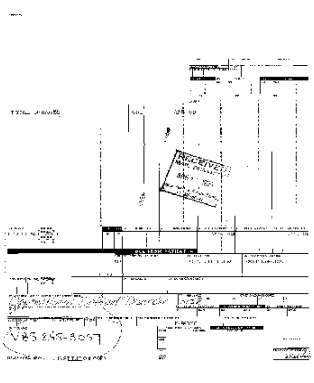
Noise Filter can be used with bi-tonal images only and is front/rear independent. Choose **(none)**, **Lone Pixel** or **Majority Rule**.

- **Lone Pixel** reduces random noise on bi-tonal images by converting a single black pixel surrounded by white to white or by converting a single white pixel surrounded by black to black.

- **Majority Rule** sets the central pixel value in a matrix according to the majority of white or black pixels in a matrix.



No Noise Filter Used



Lone Pixel

Image Filter — used to enhance images containing dot matrix text and/or images printed with shaded or colored backgrounds using halftone screens. This filter effectively eliminates noise caused by the halftone screen. Choose **(none)** or **Halftone Removal**.

- **Halftone Removal** is used to enhance images containing dot matrix text and/or images with shaded or colored backgrounds using halftone screens. This filter effectively eliminates noise caused by the halftone screen.

Contrast % — sets the image contrast by adjusting the difference between black-and-white, thereby making an image sharper or softer.

In a low contrast setting, the difference between black-and-white is small, so the image is softer. In a high contrast setting, the difference between black-and-white is large, so the image is clearer. Select a contrast value from 1 to 100. The default is 50.

Contrast 1

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890 Modern

Contrast 60

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890 Modern

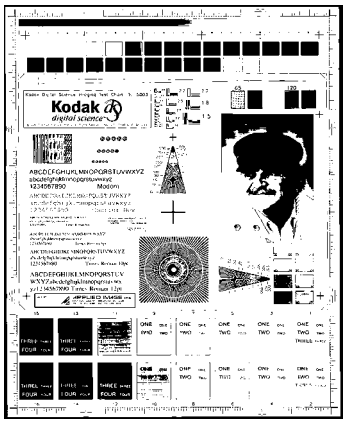
Contrast 100

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890 Modern

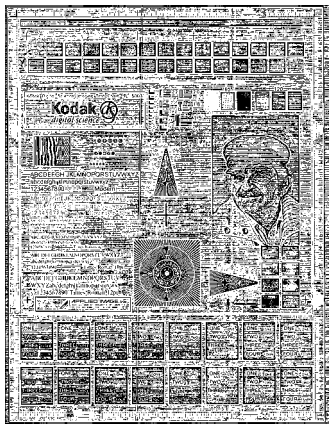
Adjust the contrast setting by dragging the Contrast sliding bar to the left or right to achieve the desired contrast setting, or you can enter a value (1 to 100) in the *Contrast* text box. Scan the document to check the contrast.

Threshold — used to convert a grayscale image to a bi-tonal image. The thresholding value is an integer ranging from 0 to 255. A low threshold value produces a lighter image, and can be used to subdue backgrounds and subtle, unneeded information. A high threshold value produces a darker image, and can be used to help pick up faint images.

Adjust the threshold setting by dragging the Threshold sliding bar to the left or right to achieve the desired threshold setting, or you can enter a value (0 to 255) in the *Threshold* text box. Scan the document to check the threshold.



200 dpi; 80 Threshold
20 Contrast



200 dpi; 80 Threshold
100 Contrast

Resolution or dots per inch (dpi) — indicates the scanning resolution, which largely determines the quality of the scanned image. The greater the resolution, the better the reproduction. However, scanning at a higher resolution also increases scanning time and file size. The industry standard is 200 dpi (about 8 pixels/mm).

Choose a resolution value from the drop down list. The default value is 200 dpi. Available resolutions are 75, 100, 150, 200, 240, 300, 400 or 600.

Polarity — the host PC provides information to the scanner defining whether the image should be stored in standard or reverse polarity. The default polarity is Black on a White background. Reverse polarity is White on a Black background.

Black on White polarity

White on Black polarity

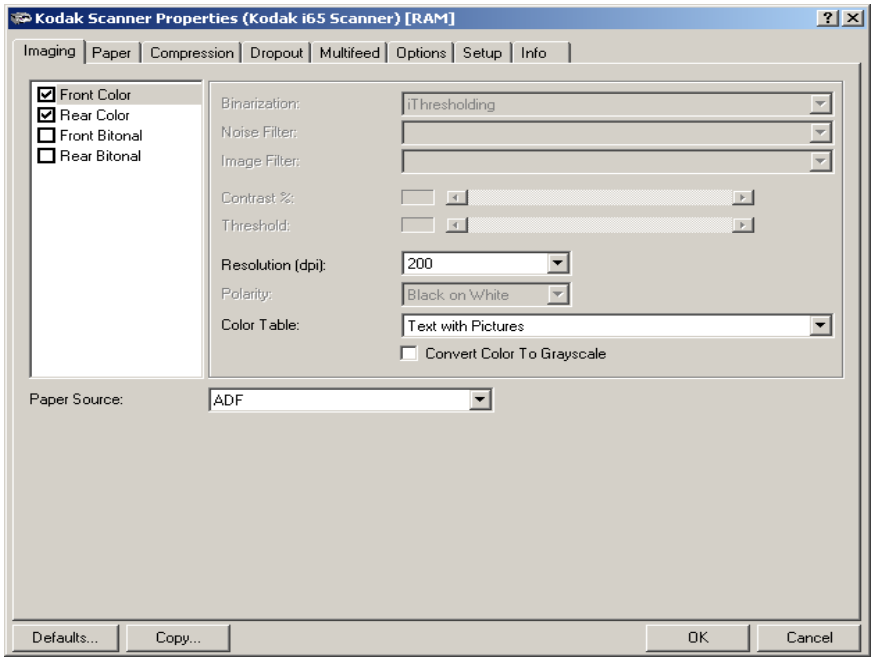
Color Table — *Not applicable for bi-tonal images.* See the next section “Scanning color images”.

Paper Source — provides the following options:

- **ADF**: select this option when using the scanner in continuous feed mode.
- **Flatbed**: select this option when using the flatbed for scanning documents that cannot be scanned when used the automatic document feeder, such as thick or bound documents (books).
- **ADF/Flatbed**: if you select this option, and no documents are in the ADF, the scanner will automatically use the flatbed.

Scanning color images

The descriptions below are for scanning color images only.



Resolution or dots per inch (dpi) — indicates the scanning resolution, which largely determines the quality of the scanned image. The greater the resolution, the better the reproduction. However, scanning at a higher resolution also increases scanning time and file size.

Choose a resolution value from the drop down list. The default is 200 dpi. Available resolutions are: 75, 100, 150, 200, 240, 300, 400 or 600.

Color Tables — the selection of a color table effects how the scanner reproduces the color of a scanned document. Color Tables are look-up tables that store color descriptions which can be used for gamma correction of images being transferred between different equipment (i.e., scanners, printers, monitors, etc.). You can choose from the three Kodak default color tables: **Pictures, Text** and **Text with Pictures,** or if you have created your own custom color tables using the *Brightness and Contrast Control*, these tables will also be available. For more information on the Brightness and Contrast Control, see the Reference Guide, A-61506.

Paper Source — provides the following options:

- **ADF**: select this option when using the scanner in continuous feed mode.
- **Flatbed**: select this option when using the flatbed for scanning documents that cannot be scanned when used the automatic document feeder, such as thick or bound documents (books).
- **ADF/Flatbed**: if you select this option, and no documents are in the ADF, the scanner will automatically use the flatbed.

Scanning grayscale images

The descriptions below are for scanning grayscale images only.

Resolution or dots per inch (dpi) — indicates the scanning resolution, which largely determines the quality of the scanned image. The greater the resolution, the better the reproduction. However, scanning at a higher resolution also increases scanning time and file size.

Choose a resolution value from the drop down list. The default is 200 dpi. Available resolutions are: 75, 100, 150, 200, 240, 300, 400 or 600.

Color Tables — the selection of a color table effects how the scanner reproduces the color of a scanned document. Color Tables are look-up tables that store color descriptions which can be used for gamma correction of images being transferred between different equipment (i.e., scanners, printers, monitors, etc.). The selection of a color table effects how the scanner reproduces the color of a scanned document. You can choose from the three Kodak default color tables: **Pictures, Text** and **Text with Pictures**, or if you have created your own custom color tables using the *Brightness and Contrast Control*, these tables will also be available. For more information on the Brightness and Contrast Control, see the Reference Guide, A-61506.

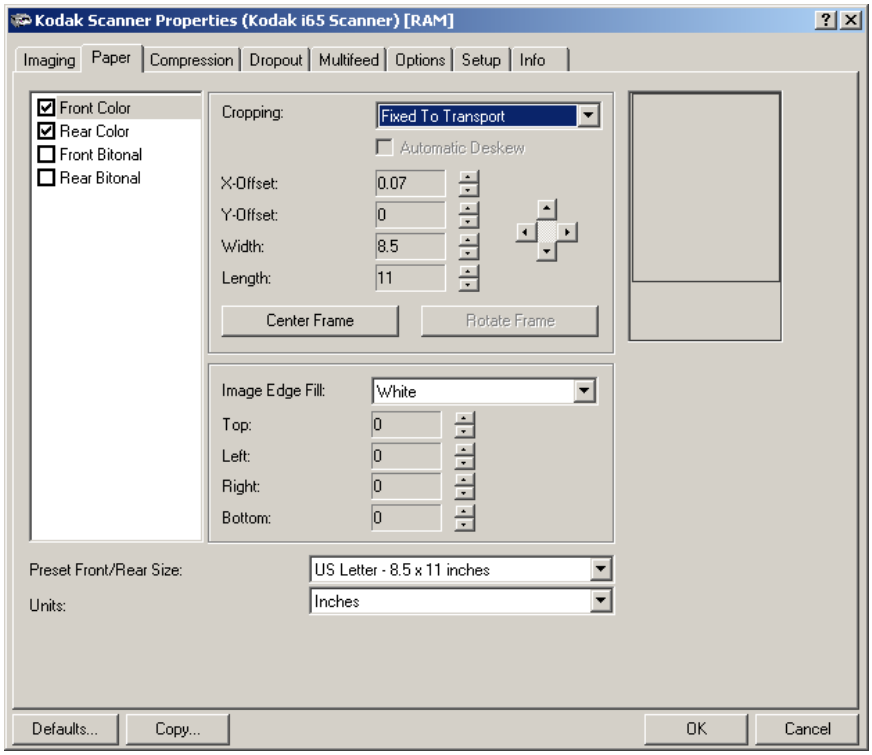
Convert Color to Grayscale — enable this option when you want the captured image to be 8-bit grayscale instead of 24-bit color.

Paper Source — provides the following options:

- **ADF**: select this option when using the scanner in continuous feed mode.
- **Flatbed**: select this option when using the flatbed for scanning documents that cannot be scanned when used the automatic document feeder, such as thick or bound documents (books).
- **ADF/Flatbed**: if you select this option, and no documents are in the ADF, the scanner will automatically use the flatbed.

The Paper tab

The Paper tab allows you to define values relating to image output (i.e., cropping values, rotation, paper size and units of measure).



Camera selection box — lists the available sides of an image that you can define individual image processing values.

The display window on the right will display the cropping area you are altering. The cropping area will change as values are being altered.

Cropping values

Cropping allows you to capture a portion of the document being scanned. Cropping options can be used independently with color/grayscale and bi-tonal images and are also front and rear side independent, however for simultaneous output scanning color/grayscale and bi-tonal cropping must be the same per side.

- On an i55 Scanner one cropping option can be assigned per document.
- On an i65 Scanner two cropping options can be set per document.

Cropping — select one of the following options:

- **Automatic:** dynamically adjusts the cropping window for different document sizes based upon the edges of the image. Use this option for batches of mixed-sized documents.
- **Aggressive:** selecting this option will eliminate any residual white/gray border on any image edges. When using Aggressive cropping, there is a possibility that a small amount of image data from the edge of the document may be lost.

- **Relative to Document** (zone processing): (used for batches of same-sized documents) — zone processing is a floating fixed crop window (the zone) located relative to the upper left corner of a document. It allows you to select an area on the document to be delivered in either color/grayscale or bi-tonal format (a separate window for both bi-tonal and color/grayscale may be defined). Different parameters may be selected for both the front and rear of the image.

  This option may be used in conjunction with Automatic cropping where a separate color/grayscale or bi-tonal area to be saved is desired. It is useful in applications where a photograph, signature, embossment or seal appears in a consistent area for an application (you may want that small area in color/grayscale and the rest in bi-tonal).

- **Fixed to Transport** (used for batches of same-sized documents): allows you to define the area or zone to be imaged. If you select this option, enter the x and y offset values, width and length. You can enter the desired values in the fields or use the arrow keys to define the desired area. The Display window will show image placement as you change the values.

The following options are only available when **Fixed to Transport** or **Relative to Document** is selected.

- **X-Offset** — the distance from the left end of the scanner to the left edge of the scanning area.
- **Y-Offset —** the position from the top end of the document to the top end of the scanning area.
- **Width —** the width of the scanning area.
- **Length —** the length of the scanning area.
- **Center Frame** — automatically calculates the x-offset for center-fed feeding based upon document size selected.
- **Rotate Frame** — automatically calculates the offset values based upon feed orientation of the document size selected (landscape vs. portrait).

NOTES:

- You can scan documents longer than 35.56 cm (14 in.) and less than 86 cm (34 in.) when the host PC is configured with adequate memory (see “System requirements” for more information).
- **Automatic** and **Relative to Document** cropping in Flatbed mode work well in most cases. When the scanner cover is removed to accommodate large magazines, books, or other bound material or when the flatbed glass becomes dirty, Automatic cropping performance may not be as desired. In these cases, you might try using the Image Edge Fill option or scanning in Fixed cropping mode and more carefully aligning the document on the flatbed.

Automatic Deskew — select this option to automatically deskew a document within ±0.3 degrees of the leading edge of the document. This option is only available if you have **Automatic** cropping selected.

Image Edge Fill — fills the edges of a scanned image, after all other image processing options have been applied, by covering the area in **Black** or **White** (as selected). Select a value in the **Top, Left, Right** and/or **Bottom** area(s) from each side of the scanned image to be filled.

NOTE: When using this option, be careful not to enter a value too large as it could fill in image data that you want to keep.

Additional paper selections

In addition to cropping values that can be applied using the Paper tab, the following options are available:

Preset Front/Rear Size — the default paper size is set when a scanner is first selected. You can choose a different paper size using the drop-down list box.

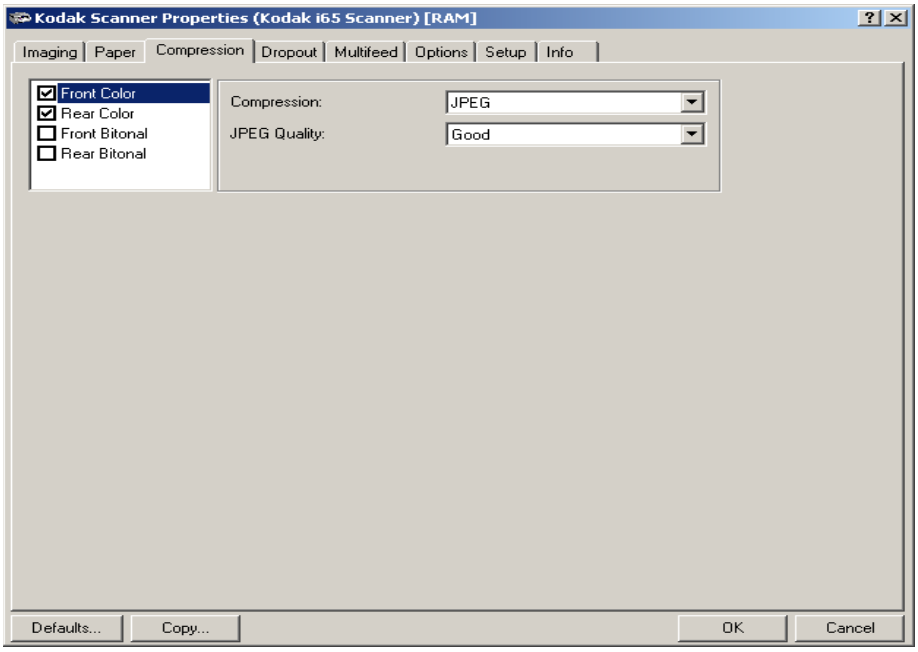
Units — defines the primary measurement system. **Inches, Centimeters, Picas, Points, 20th of Points,** and **Pixels** are available.

The Compression tab

Compression squeezes a file to decrease the total size. Bi-tonal images are normally compressed using a CCITT standard called Group IV, often used in conjunction with TIFF files. Color and grayscale images are often compressed using JPEG techniques.

TIFF (Tagged Image File Format) is a file format standard commonly used for bi-tonal images. It is often used in conjuction with the CCITT Group IV compression standard to reduce image file size. Color and grayscale images can be saved in this format too, but they are often found uncompressed and are, therefore, quite large. Use the Compression tab to select compression settings.

JPEG (Joint Photographic Editor Group). This group developed and lent their name to a file compression standard for color and grayscale images that is widely used by scanners, digital cameras and software applications. On Microsoft Windows-based systems, a file with the extension .jpg has normally been compressed using this standard.



Camera Selection box — lists the available sides (Front Color, Rear Color, etc.) of an image that you can define individual image processing values.

Compression — the i55/i65 Scanners can be configured to output bi-tonal, grayscale, and color images in various supported formats and resolutions independent of each other and each side of the image. These options vary based on the type of scanner.

For bi-tonal scanning the following compressions are available:

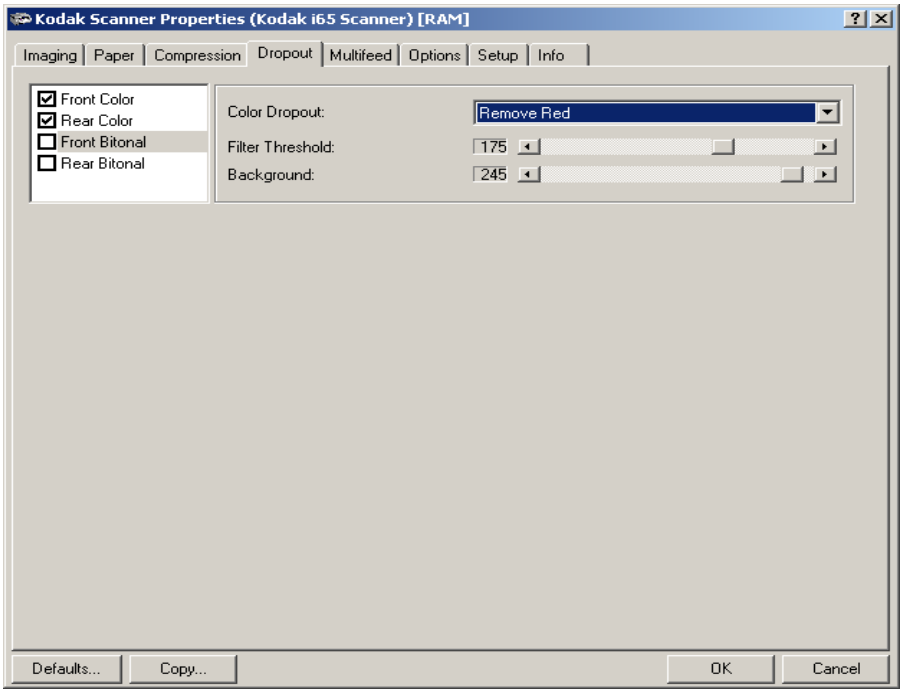
- CCITT Group 4 TIFF
- (none) uncompressed TIFF

The following color/grayscale compression options are available:

- **JPEG** — JPEG compression offers a JPEG quality of **Draft**, **Good, Better, Best, Superior.**
  - **Draft**: smallest file size with draft image quality
  - **Good**: larger file size with good image quality
  - **Better**: larger file size with better image quality
  - **Best**: larger file size with the best image quality
  - **Superior**: largest file size with superior image quality
- **(none)** produces an uncompressed bitmap.

The Dropout tab

Electronic Color Dropout is used to eliminate a form's background so that a document management system may automatically — through OCR (Optical Character Recognition) and ICR (Intelligent Character Recognition) technology — read pertinent data without interference from the lines and boxes of the form. The i55/i65 Scanners can dropout either red, green or blue. The Dropout tab allows you to select the desired dropout color and alter the filter threshold and background.



Camera Selection box — electronic color drop-out is available only for bi-tonal and grayscale images.

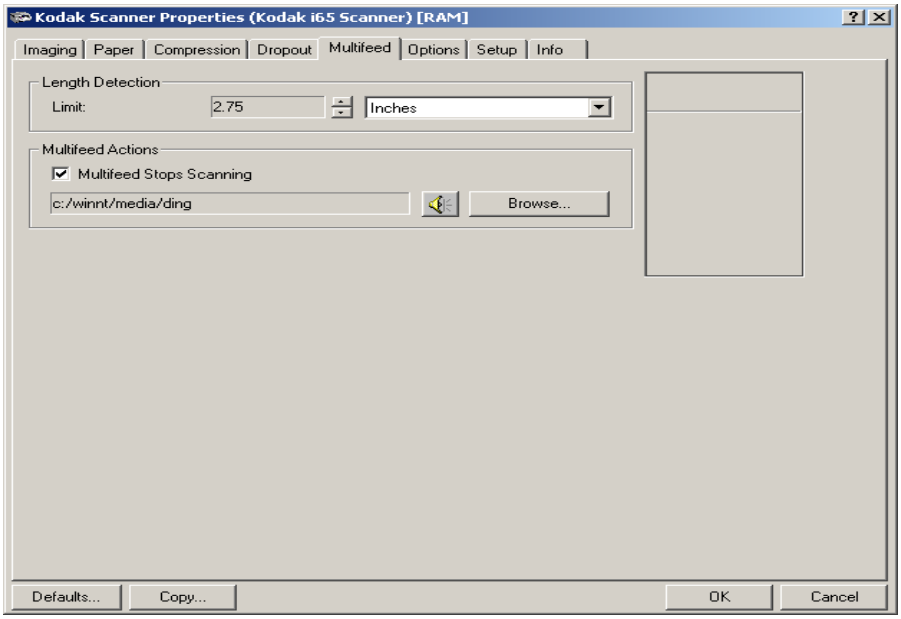
Color Dropout — choose the color you want to eliminate: **(none) Remove Red, Remove Green, Remove Blue.**

Filter Threshold — the value that is used to identify the color which will be dropped out. This value is applied to the color area. Color with a Red/Green/Blue component more than the entered value is dropped. This setting determines how much of the selected color is dropped out. A lower value will leave more of the selected color in, while a higher value will drop more of the selected color out.

Background — this value will be substituted in the grayscale (pre-thresholded) image for the color being removed. Therefore, this value should be higher than the threshold value selected on the Imaging tab for this pixel to become the background color. For example, if you are scanning a white document with a green form and you have selected a bi-tonal threshold value of 127, you should choose an electronic color drop-out background value greater than 127 so the substituted pixel will be white in the dropped-out image.

The Multifeed tab

Multi-feed Detection aids in document processing by detecting documents that may go through the feeder overlapped.



Length Detection — choose the minimum length of the document that can be scanned with a multi-feed being detected. The Display window will show the size of the document as you change the value. You can select to display this amount in **Inches, Centimeters, Picas, Points, 20th of Points** or **Pixels.** A value of 0 indicates no length detection. Length detection is best used when scanning same-sized documents.

Multifeed Stops Scanning — if this option is not selected, the scanner will log the condition but continue to operate. You can choose the sound you would like the PC to make to alert you of a multifeed.

To choose a sound:

- Click on the **Browse** button and choose the desired .wav file.

The Options tab

The Options tab allows you to set Image Transfer and Transport control.

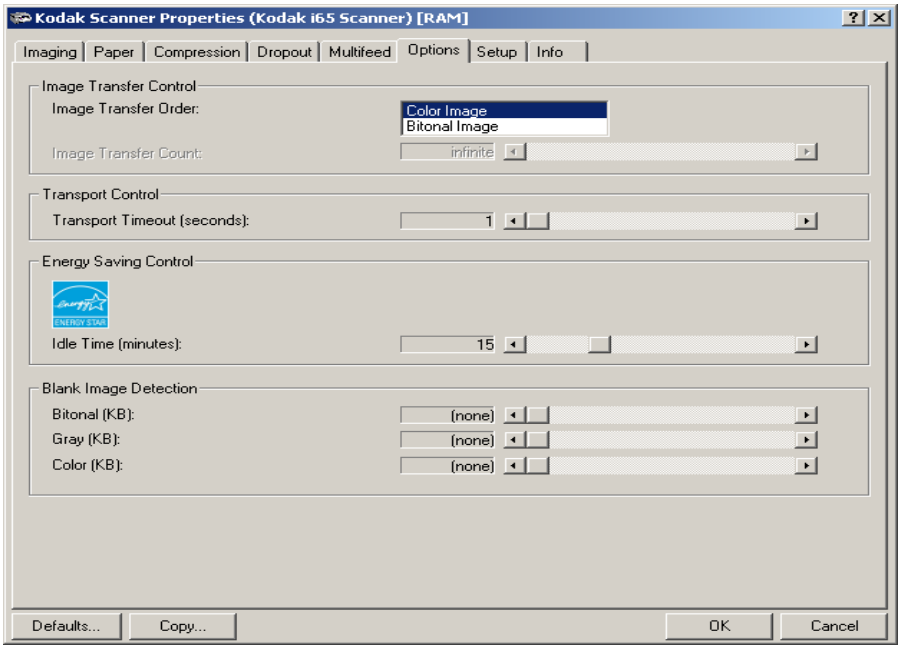


Image Transfer Order — if you are using simultaneous output scanning (bi-tonal and color/grayscale) for either side, this option controls the order in which the scanner returns image data. For example, if you are scanning color and bi-tonal and you select **Bi-tonal Image**, the scanner will return the bi-tonal front image, then the front color image.

Transport Timeout — allows you to set a transport timeout value. This value is the amount of time the scanner will wait after the last document enters the transport before the transport timeout action is taken. You can specify a time delay setting from 1 to 30 seconds.

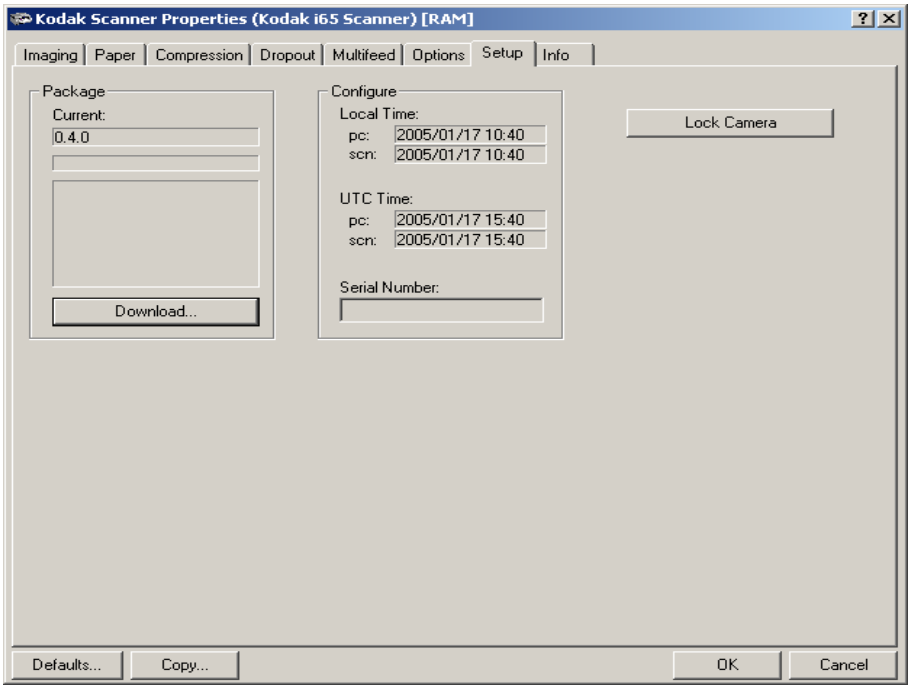
Energy Saving Features of Scanner — allows you to set the amount of time the scanner will remain inactive before the scanner goes into an idle state. Choices are: (none) and 5 to 60 minutes. The default is 15 minutes.

Blank Image Detection — use the slider bar to specify the image size (KB), below which an image is determined to be blank. Images with sizes less than the size number you select will not be created. If you use this option, you must specify a blank image size for each image output type (**Bi-tonal**, **Grayscale** and **Color)** not just one. The default for this option is **None**, which means that you will keep all images.

The Setup tab

The Setup tab allows you to download firmware and set the scanner clock. *The Setup tab is only available when running the Scan Validation Tool, via the TWAIN Datasource.*

Package — the scanner firmware runs your *Kodak* i55/i65 Scanners. The value displayed in the Current field is the version of firmware currently in use by your scanner. Periodically Kodak releases updated versions of firmware which are available through Kodak Service and Support. When **Download** is selected, the Select Scanner Firmware dialog box will be displayed.



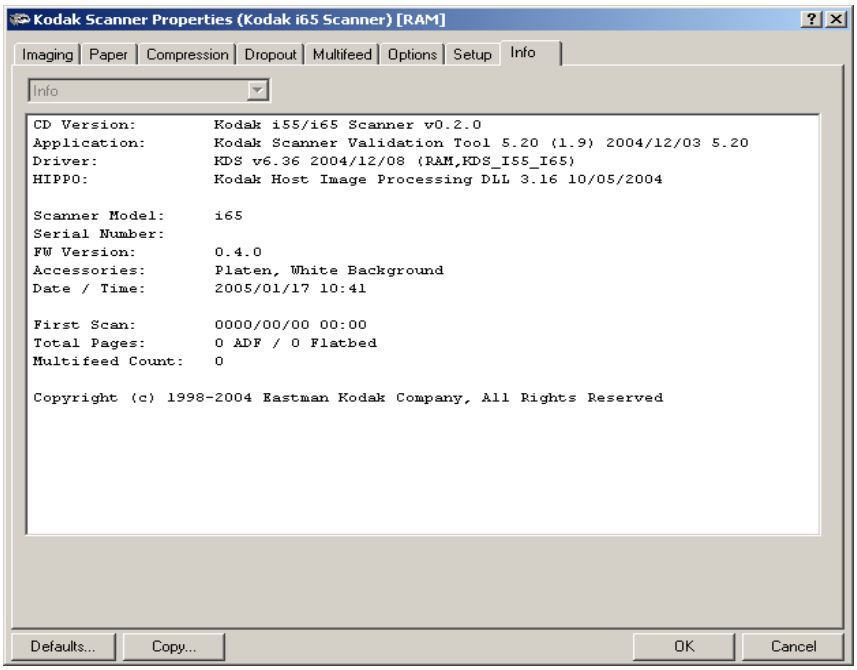
Download… — this option is used to download the latest version of firmware to your scanner.

Configure — displays the local time, UTC (Universal Time Clock) and the scanner serial number.

Lock camera — click this button to lock the scanner's flatbed camera assembly. This is normally done before shipping the scanner to avoid damage to the flatbed camera. Refer to the section entitled, "Locking the scanner" in Chapter 2 for more information and procedures.

The Info tab

The Info tab displays information that is pertinent to your scanner.



Using the ISIS Driver

The ISIS Driver is a piece of software that communicates with the scanner. This driver is created and maintained by Pixel Translations, Inc. and is provided with the scanner by Kodak. Many scanning applications support ISIS drivers and this driver can be used to interface with them.

This section provides descriptions of the options on the ISIS dialog boxes and how to set these options.

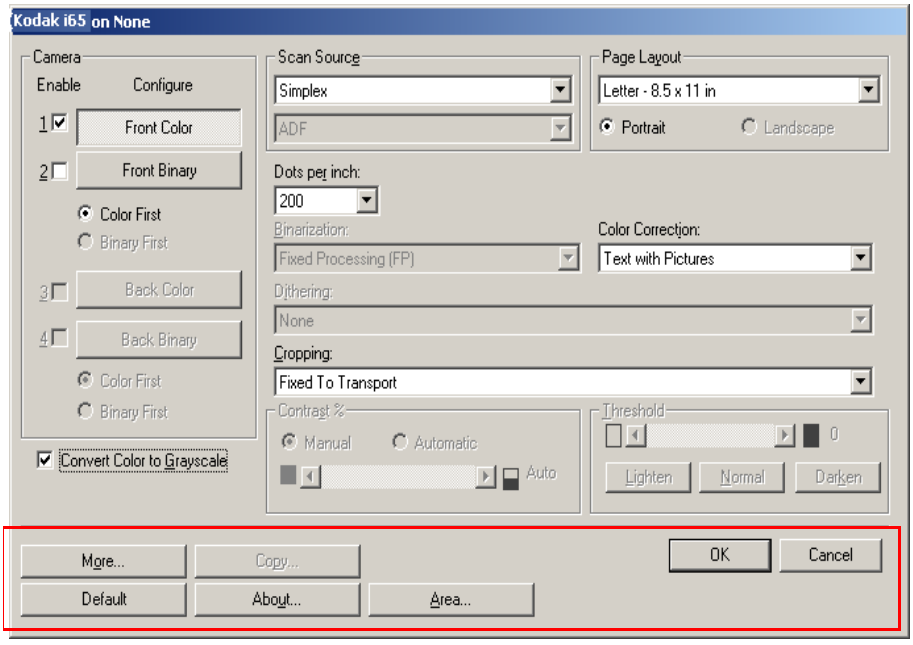
For the purpose of this manual, all displayed dialog boxes assume the features available on the *Kodak* i65 Scanner. If you have a *Kodak* i55 Scanner all options are limited to simplex scanning only.

Scanner Settings dialog box

See the section entitled, “Starting the Scan Validation Tool” earlier in this chapter to access the Scanner Settings dialog box.

Buttons on the Scanner Settings dialog box

Following are descriptions of the buttons located at the bottom of the dialog box.



More — displays the More Scanner Settings dialog box. This dialog box provides additional image processing settings unique to the *Kodak* i55/i65 Scanners.

Area — displays the Scan Area dialog box.

Copy — this function is only available when using the scanner in duplex mode. The Copy button provides a convenient way to set up the color, grayscale or binary image settings on one side and transfer them to the other. For example, if you highlight and set up **Front Binary**, you can use the Copy button to duplicate those settings for Rear Binary.

About — displays the About dialog box. The About dialog box provides detailed information such as the driver version number, certification status and the version of QuickDriver used to develop this driver.

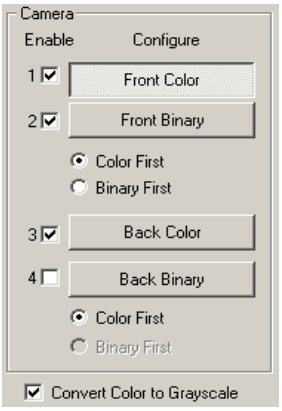
Default — when you select **Default**, the values will be reset to the factory defaults.

OK — saves the values set on all dialog boxes.

Cancel — closes the dialog box without saving any changes.

Camera Settings area

The selections in the Camera area list the available sides (front and back) of an image where you can define individual image processing values. Options include: Front Color, Front Binary, Back Color and Back Binary. For detailed information about Camera selection, see the section entitled, “Making camera selections” earlier in Chapter 4.



On the *Kodak* i65 Scanner there is a separate camera for each side of the document being scanned. The *Kodak* Scanner drivers allow you to control the camera settings independently. Some settings apply only to *binary* (black-and-white) images, others apply to color/grayscale images. By selecting the appropriate camera and image type, you can control the scanner’s output.

When starting the configuration process, use the steps below as a guide:

1. Check the images you wish to capture (Enable camera settings).
2. Select the order to transfer the images (Color First or Binary First).
3. Configure each image by highlighting it (Configure).

Enable camera settings — select the desired checkbox to enable the Front Color, Front Binary, Back Color or Back Binary settings as desired. This indicates the images you wish to capture and transfer to the host PC. (It is possible to capture only rear images.) Enable your selection by putting a checkmark in the desired box.

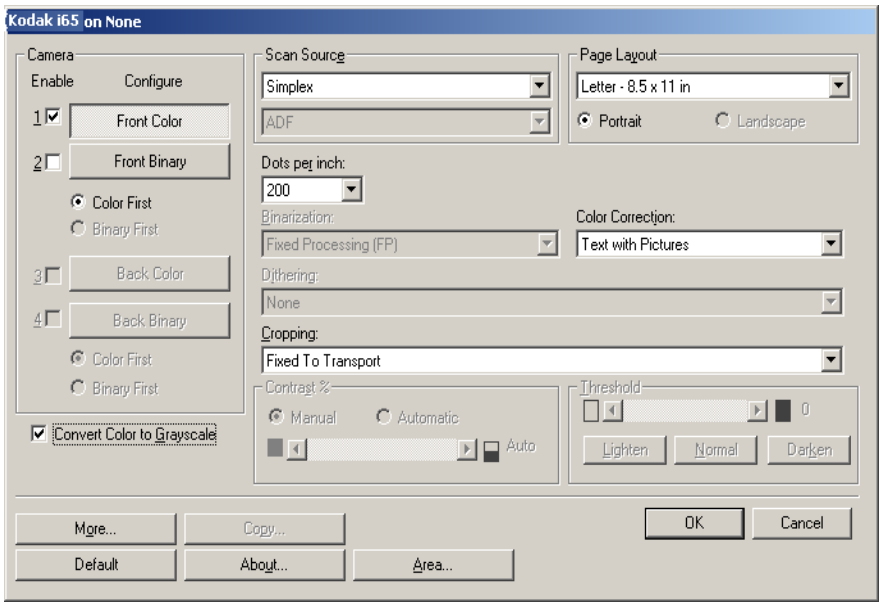
Color First/Binary First — define the transfer order by selecting the **Color First** or **Binary First** radio button. This determines which image is transferred to the host PC first when using simultaneous output scanning. For example, if you are scanning front color and front binary and you select **Binary First** the scanner will return the front binary image, then the front color image.

Configure — highlight the image you want to setup. As you select the image, other options will become available on the Scanner Settings dialog box. The availability of these options is dependent upon the selection you make.

Convert Color to Grayscale — this option is only available when configuring color cameras. When selected, the scanner will convert the color image data to grayscale before making it available to the host PC.

Image Processing settings

The other options on this dialog box allow you to define image processing values that can be applied to your scanner.



Scan Source — the host PC provides information to the scanner defining whether to scan one or both sides of the document. **Simplex** indicates that only one side (front side) of the document will be scanned. **Simplex – Back** indicates that only one side (back side) of the document will be scanned. **Duplex** indicates that both sides of the **document will be scanned.**

Also select one of the following options:

- **ADF**: select this option when using the scanner in continuous feed mode.
- **Flatbed**: select this option when using the flatbed for scanning documents that cannot be scanned when used the automatic document feeder, such as thick or bound documents (books).
- **ADF/Flatbed**: if you select this option, and no documents are in the ADF, the scanner will automatically use the flatbed.

Dots per inch (dpi) or Resolution — indicates the scanning resolution, which largely determines the quality of the scanned image. The greater the resolution, the better the reproduction. However, scanning at a higher resolution also increases scanning time and file size.

Choose a resolution value from the drop-down list. The default is 200 dpi. Available resolutions are: 75, 100, 150, 200, 240, 300, 400 and 600.

Cropping — allows you to capture a portion of the document being scanned. All cropping options can be used with color/grayscale and binary images. Front and Rear cropping are independent, however, for simultaneous output scanning, color/grayscale and binary cropping must be the same per side. Only one cropping option can be assigned per image. Select one of the following options:

- **Automatic:** dynamically adjusts the cropping window for different document sizes based on the edges of the image. Use this option for batches of mixed-sized documents.
- **Aggressive:** selecting this option will eliminate any residual black border on any image edges. In order to achieve this, there is a possibility that a small amount of image data from the edge of the document may be lost.
- **Fixed to Transport** (used for batches of same-sized documents): allows you to define the area or zone to be imaged. Fixed to Transport cropping is used in conjunction with paper size and page layout and assumes you are center-feeding your documents. If you are not using center feeding, you must select the **Area** button to define your scan area. See the section entitled, “Defining the Scan area” later in this chapter.
- **Relative to Document** (zone processing): (used for batches of same-sized documents) — zone processing is a floating fixed crop window (the zone) located relative to the upper left corner of a document. It allows you to select an area on the document to be delivered in either color/grayscale or binary format (a separate window for both binary and color/grayscale may be defined). Different parameters may be selected for both the front and rear of the image.

  This option may be used in conjunction with Automatic cropping where a separate color/grayscale or binary area to be saved is desired. It is useful in applications where a photograph, signature or seal appears in a consistent area for an application (you may want that small area in color/grayscale and the rest in binary).

  To define a zone, select **Area** to display the Scan Area dialog box. See the section entitled, “Defining the Scan area” later in this chapter for more information.

NOTES:

- You can scan documents larger than 35.56 cm (14 in.) and less than 86 cm (34 in.) in length when the host PC is configured with adequate memory (see “System requirements” for more information regarding memory requirements).
- **Automatic** and **Relative to Document** cropping in Flatbed mode work well in most cases. When the scanner cover is removed to accommodate large magazines, books, or other bound material or when the flatbed glass becomes dirty, Automatic cropping performance may not be as desired. In these cases, you might try using the Image Edge Fill option or scanning in Fixed cropping mode and more carefully aligning the document on the flatbed.

Page size and layout

The default paper size is set when a scanner is first selected. You can choose a different paper size using the drop-down list box.

NOTE: The Page Size and Page Layout selections also appear on the Scan Area dialog box. If you make a change on the Scanner Settings dialog box, the same selections will appear on the Scan Area dialog box and vice versa.

The Page Layout area allows you to select either Portrait or Landscape.

- **Portrait** will display the image orientation in the shape of a conventional portrait, where height is greater than width.
- **Landscape** will display the image orientation in the shape of a conventional landscape painting, where width is greater than height.

Binarization is the process of converting a grayscale or color image to a binary image. There are several different methods of performing this conversion. ***The following descriptions are for binary images only.***

The following binarization options work on grayscale scanned images and outputs a bi-tonal electronic image. Their strength lies in the ability to separate the foreground information from the background information even when the background color or shading varies, and the foreground information varies in color quality and darkness. Different types of documents may be scanned using the same image processing parameters and results in excellent scanned images.

Available binarization options are:

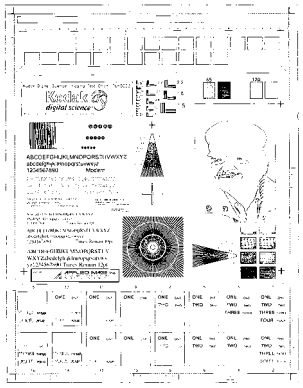
- **iThresholding:** selecting iThresholding allows the scanner to dynamically evaluate each document to determine the optimal threshold value to produce the highest quality image. This allows scanning of mixed document sets with varying quality (i.e., faint text, shaded backgrounds, color backgrounds) to be scanned using a single setting thus reducing the need for document sorting.

  When using iThresholding, only Contrast may be adjusted.

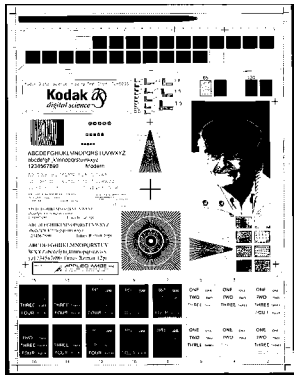
- **Fixed Processing (FP):** used for black-and-white and other high contrast documents. A single level is set to determine the black-and-white transition. The threshold is programmable over the entire density range. Fixed thresholding sets the contrast to 0. If Fixed Processing is selected, Contrast is not available.

- **Adaptive Thresholding (ATP):** the Adaptive Threshold Processor separates the foreground information in an image (i.e., text, graphics, lines, etc.) from the background information (i.e., white or non-white paper background).

  When using Adaptive Thresholding, Threshold and Contrast may be adjusted. Contrast values may range from 1 to 100. A Contrast value of 100 is considered fully adaptive thresholding.



Fixed thresholding ATP disabled



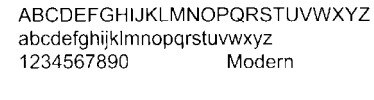
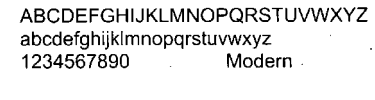
ATP enabled

Dithering — a method used to simulate gray levels. When selected, the Dithering options are available.

- **64-Level Bayer Dither, 64-Level 45 Degree Clustered Dot Screen** and **64-Level Dispersed Dot Screen**: these represent alternative screening options to emulate gray.

Contrast % — sets the image contrast by adjusting the difference between black-and-white, thereby making an image sharper or softer. Contrast is only available for binary images.

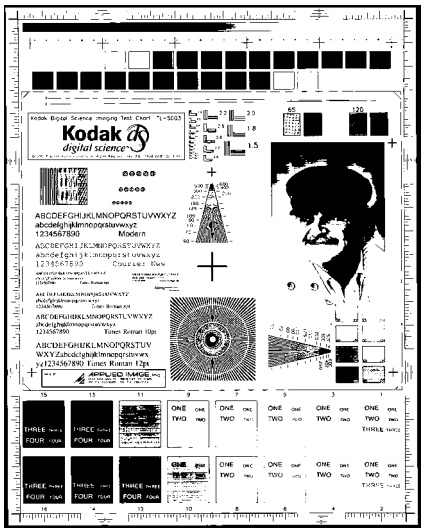
In a low contrast setting, the difference between black-and-white is small, so the image is softer. In a high contrast setting, the difference between black-and-white is large, so the image is clearer. Select a contrast value from 1 to 100. The default is 50.

Contrast 1	
Contrast 60	
Contrast 100	

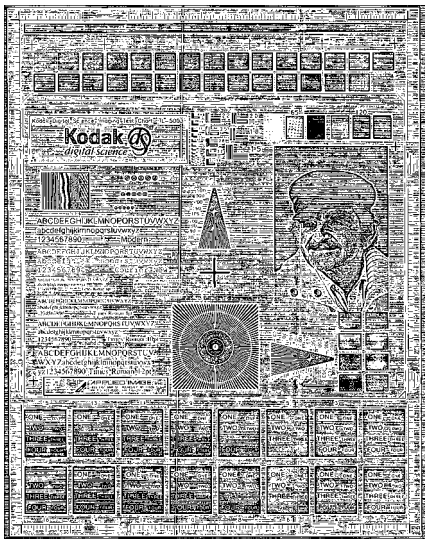
Manual — is always selected for binary images. Adjust the Contrast setting by dragging the Contrast sliding bar to the left or right to achieve the desired Contrast setting. Scan the document to check the contrast.

Threshold — thresholding is used to convert a grayscale image into a binary (1 bit/pixel) image. The thresholding value ranges from 0 to 255. The default is 90. A low threshold value will produce a lighter image, and can be used to subdue backgrounds and subtle, unneeded information. A high threshold value will produce a darker image, and can be used to help pick up faint images.

Adjust the Threshold setting by dragging the Threshold sliding bar to the left or right to achieve the desired Threshold setting. Scan the document to check the threshold.



200 dpi; 80 Threshold; 20 Contrast

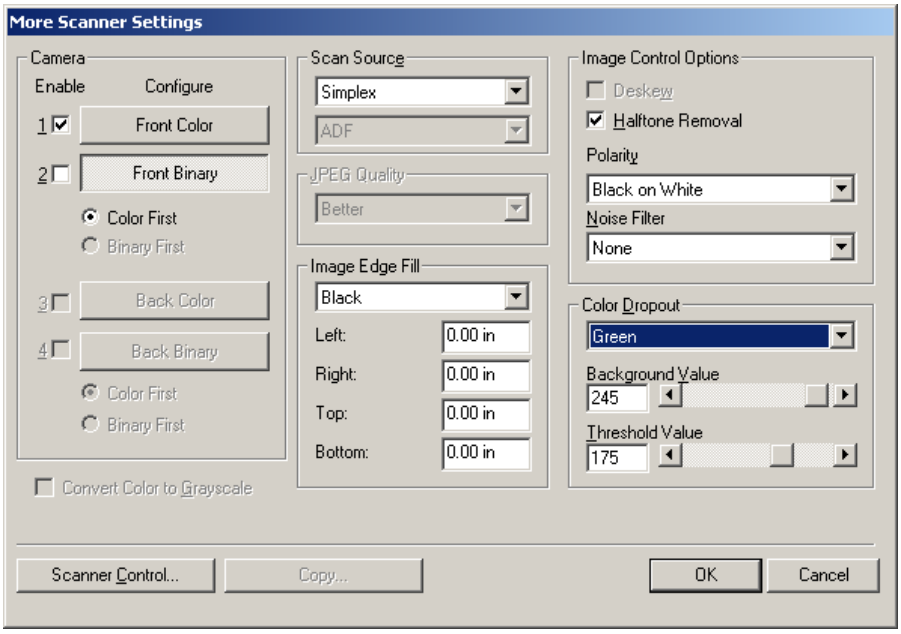


200 dpi; 80 Threshold; 100 Contrast

Lighten, Normal and **Darken** are used as quick sets to adjust the threshold. Lighten = 72, Normal = 90 and Darken = 128.

More Scanner Settings dialog box

Additional image processing values unique to the i55/i65 Scanners are available when you choose the More button on the Scanner Settings dialog box.



Camera settings area

The selections in the Camera area list the available sides (front and back) of an image where you can define individual image processing values.

When starting the configuration process, use the steps below as a guide:

1. Check the images you wish to capture (Enable camera settings).
2. Select the order to transfer the images (Color First/Binary First).
3. Configure each image by highlighting it (Configure).

Enable camera settings — select the desired checkbox to enable the Front Color, Front Binary, Back Color or Back Binary settings as desired. This indicates the images you wish to capture and transfer to the host PC. (It is possible to capture only rear images.) You can enable your selection by putting a checkmark in the desired box.

Color First/Binary First — define the transfer order by selecting the **Color First** or **Binary First** radio button. This determines which image is transferred to the host PC first when using simultaneous output scanning. For example, if you are scanning front color and front binary and you select **Binary First** the scanner will return the front binary image, then the front color image.

Configure — highlight the image you want to setup. As you select the image, other options will become available on the More Scanner Settings dialog box. The availability of these options is dependent upon the selection you make.

Convert Color to Grayscale — this option is only available when configuring color cameras. When selected, the scanner will convert the color image data to grayscale before making it available to the host.

Scan Source — the host PC provides information to the scanner defining whether to scan one or both sides of the document. **Simplex** indicates that only one side (front side) of the document will be scanned. **Simplex – Back** indicates that only one side (rear side) of the document will be scanned. **Duplex** indicates that both sides of the document will be scanned.

JPEG (Joint Photographic Editor Group) **Quality**. This group developed and lent their name to a file compression standard for color and grayscale images that is widely used by scanners, digital cameras and software applications. On Microsoft Windows-based systems, a file with the extension .jpg has normally been compressed using this standard. JPEG compression offers a JPEG quality of **Draft**, **Good, Better, Best** and **Superior.**

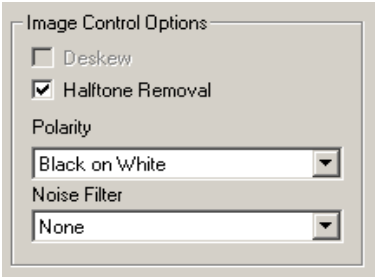
- **Draft** — smallest file size with draft image quality.
- **Good** — larger file size with good image quality.
- **Better** — larger file size with better image quality.
- **Best** — larger file size with the best image quality.
- **Superior** — largest file size with superior image quality.

Image Edge Fill — fills the edges of a scanned image, after all other image processing options have been applied, by covering the area in **Black** or **White** (as selected). Select a value in the **Top, Left, Right** and/or **Bottom** area(s) from each side of the scanned image to be filled.

- When using this option, be careful not to enter a value too large as it could fill in image data that you want to keep.

Image Control options

The following Image Control options are available:



Deskew — check this option to automatically deskew a document within ±0.3 degrees of the leading edge of the document. Automatic deskew can detect up to a 45-degree skew and correct up to a 24-degree angle at 200 dpi or a 10-degree skew angle at 300 dpi. This option is not available when you have **Fixed to Transport** or **Relative to Document** cropping selected.

NOTE: To prevent data loss, the document must have all four corners within the image path.

Halftone Removal — used to enhance images containing dot matrix text and/or images with shaded or colored backgrounds using halftone screens. This filter effectively eliminates noise caused by the halftone screen. This option is only applied to binary images.

Polarity — the host PC provides information to the scanner defining whether the image should be stored in standard or reverse polarity. The default polarity is Black on a White background. Reverse polarity is White on a Black background.

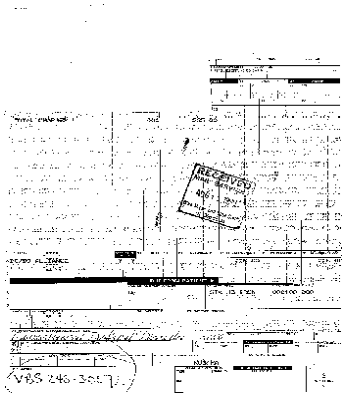
Black on White polarity

White on Black polarity

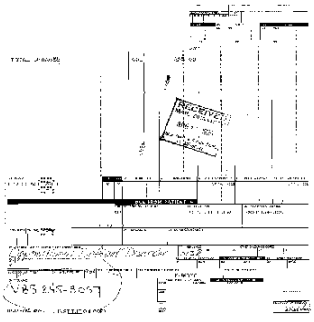
Noise filter — occasionally small dots or specks appear in the background of a scanned image. These specks increase file compression size and usually contain no image information. Using the Noise Filter on documents containing very fine detail (e.g., the dot on an "i" in 4-point type) may cause information to be lost. It is recommended that you do not use the Noise Filter when scanning documents with text smaller than 7-point type.

Noise Filter can be used with binary images only and is Front/Rear independent. Choose **None**, **Lone Pixel** or **Majority Rule**.

- **Lone Pixel** reduces random noise on binary images by converting a single black pixel surrounded by white to white or by converting a single white pixel surrounded by black to black.
- **Majority Rule** sets the central pixel value in a matrix according to the majority of white or black pixels in a matrix.



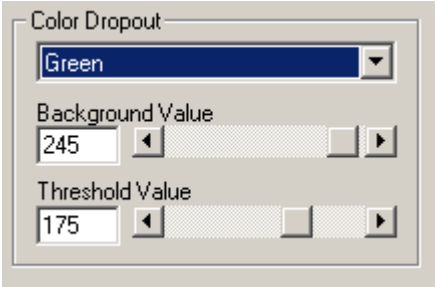
No Noise Filter Used



Lone Pixel

Color Dropout options

Electronic color dropout is used to eliminate a form's background so that a document management system may automatically — through OCR (Optical Character Recognition) and ICR (Intelligent Character Recognition) technology — read pertinent data without interference from the lines and boxes of the form. You can select the desired dropout color, and alter the filter threshold and background.



Electronic color dropout is available only for binary and grayscale images.

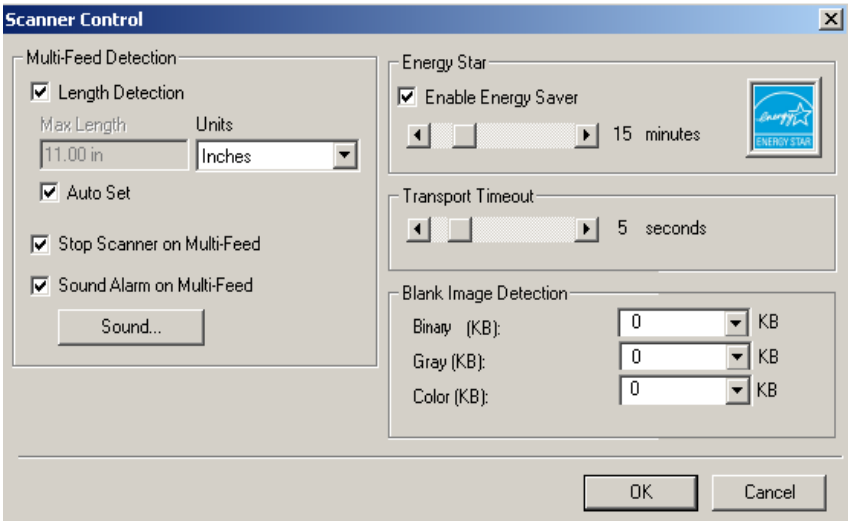
Dropout Color — the i55/i65 Scanners can drop out red, green or blue. None is the default.

Background Value — this value will be substituted in the grayscale (pre-thresholded) image for the color being removed. Therefore, this value should be higher than the threshold value selected on the Scanner Settings dialog box for this pixel to become the background color. The default value is 245. For example, if you are scanning a white document with a green form and you have selected a binary threshold value of 127, you should choose an electronic color dropout background value greater than 127 so the substituted pixel will be white in the dropped-out image.

Threshold value — the value that is used to identify the color which will be dropped out. This value is applied to the color area. Color with a Red/Green/Blue component more than the entered value is dropped. This setting determines how much of the selected color is dropped out. A lower value will leave more of the selected color in, while a higher value will drop more of the selected color out. The default value is 175.

Scanner Control dialog box

Selecting the Scanner Control button on the More Scanner Settings dialog box displays the Scanner Control dialog box.



This dialog box allows you to set multi-feed detection and transport control. The settings in this dialog box do not affect the quality of the image.

OK — saves the values set on the dialog box.

Cancel — closes the dialog box without saving any changes.

Multi-Feed Detection options

Length Detection — this option can be enabled or disabled. The default is disabled. If Length Detection is enabled, enter the maximum length. This is the minimum length of the document that can be scanned with a multi-feed being detected. Length detection is used when scanning same-sized documents to check for overlap. For example, if you are scanning 8.5 x 11-inch (A4) documents in portrait mode, you may want to enter a value of 11.25 inches (28.57 cm) in the Maximum Length field.

Units — defines the primary measurement system. **Pixels, Inches,** and **Centimeters** are available.

Auto Set — when enabled, will automatically set the maximum length value to .50-inch (1.27 cm) greater than the length of the currently selected page size.

Stop scanner on Multi-Feed — when enabled, the scanner will stop when a multi-feed is encountered.

Sound Alarm on Multi-Feed — when enabled, the scanner will alert you with the sound you selected when a multi-feed is encountered.

Sound — select this option to choose the sound you would like your PC to make to alert you of a multi-fed document.

To choose a sound:

1. Click on the **Sound** button to display the Open dialog box.
2. Choose the desired .wav file.
3. Click **Open** on the dialog box and the sound will be saved.

Energy Saving features of the scanner

Energy Star allows you to set the amount of time the scanner will remain inactive before the scanner goes into an idle state (sleep mode). Choices are: 0 to 60 minutes.

Transport timeout

This feature allows you to set a transport timeout value. This value is the amount of time the scanner will wait after the last document enters the transport before the transport timeout action is taken. You can specify a time delay setting from 1 to 300 seconds. The default is 10 seconds.

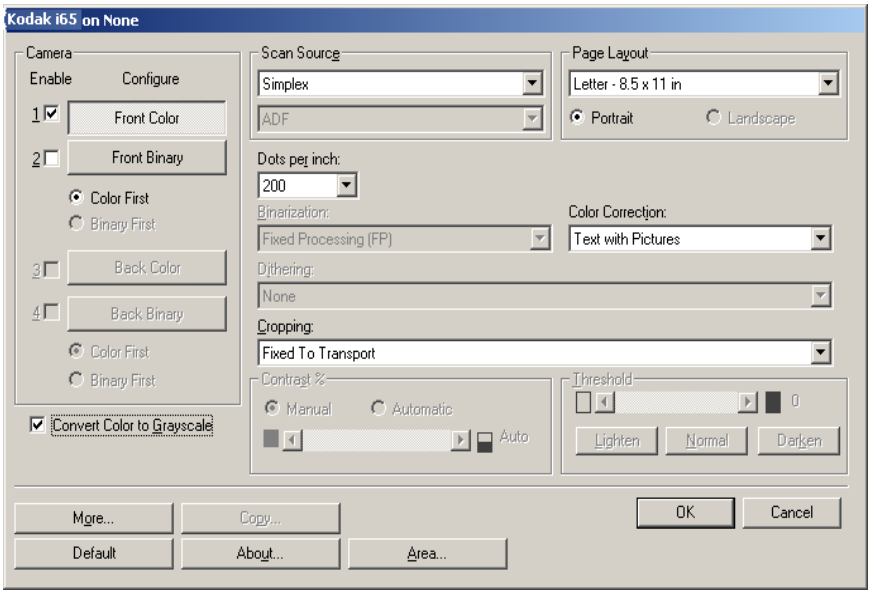
Blank image detection

Use the slider bar to specify the image size (KB), below which an image is determined to be blank. Images with sizes less than the size number you select will not be created. If you use this option, you must specify a blank image size for each image type (Bi-tonal, Gray and Color) you want to delete. The default for this option is None, which means that you will keep all images dialog box.

Defining the Scan area

The Scan Area dialog box is only available for images when the Cropping option selected on the Scanner Settings dialog box is either **Fixed to Transport** or **Relative to Document** cropping.

To access the Scan Area dialog box, select **Area** on the Scanner Settings dialog box.

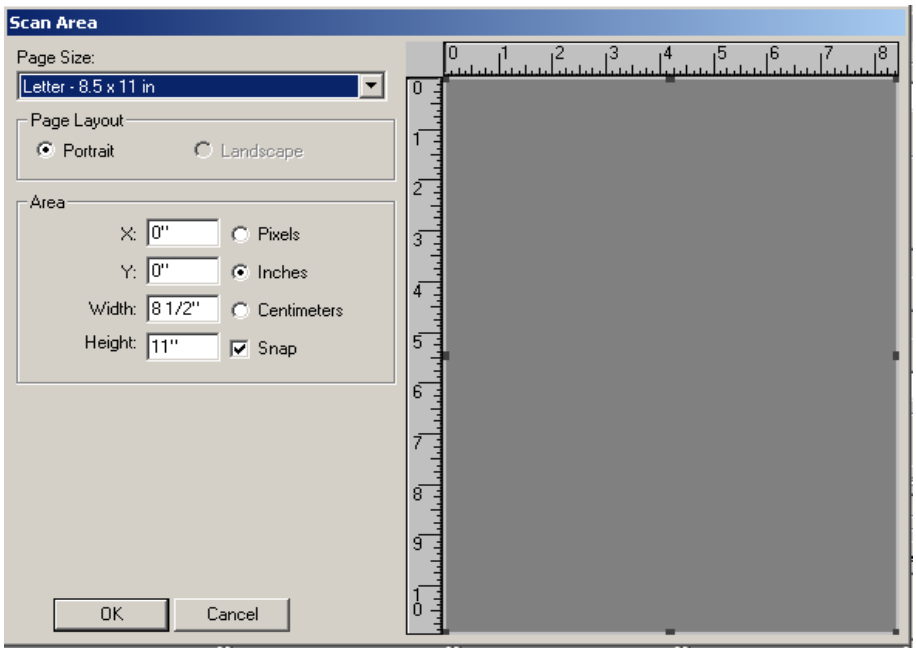


NOTE: Select the side and image to be defined by highlighting Front Color/Grayscale, Front Binary, Back Color/Grayscale, Back Binary or as appropriate based on the cropping option selected for each of these in the Scanner Settings dialog box. The scan areas defined for all camera selections are independent.

Scan Area dialog box

The Scan Area dialog box allows you to define the amount of image data which is returned to the host. The area can be defined in **Pixels**, **Inches** or **Centimeters**.

The Scan Area dialog box is only available when **Fixed to Transport** or **Relative to Document** is selected on the Scanner Settings dialog box.



Page size and layout — the default paper size is set when a scanner is first selected. You can choose a different paper size using the drop-down list box.

NOTE: The Page Size and Page Layout selections also appear on the Scanner Settings dialog box. If you make a change on the Scan Area dialog box, the same selections will appear on the Scanner Settings dialog box and vice versa.

The Page Layout area allows you to select either **Portrait** or **Landscape**.

Portrait will display the image orientation in the shape of a conventional portrait, where height is greater than width.

Landscape will display the image orientation in the shape of a conventional landscape painting, where width is greater than height.

Area:

X — the distance from the left end of the scanner to the left-edge of the scanning area.

Y — the position from the top end of the document to the top end of the scanning area.

Width — the width of the scanning area.

Height — the height of the scanning area.

Snap — causes the dimensions of the Area box to be controlled in fixed 1/8-inch increments. This option is not available in **Pixels** mode.

5 Maintenance

Cleaning procedures

Your scanner needs to be cleaned periodically. If documents do not feed easily, if several documents feed at the same time or if streaks appear on your images, it is time to clean your scanner. The section entitled, “Supplies and consumables” at the end of this chapter provides a listing of the supplies required to clean your scanner.

IMPORTANT: Use only non-flammable cleaners such as those provided through Kodak Parts Services. Do not use household cleaners.

Do not use cleaners in confined areas, use with adequate ventilation.

Do not use cleaners on hot surfaces. Allow surfaces to cool to ambient temperature before use.

Cleaning the feed rollers

1. Lift the ADF cover.

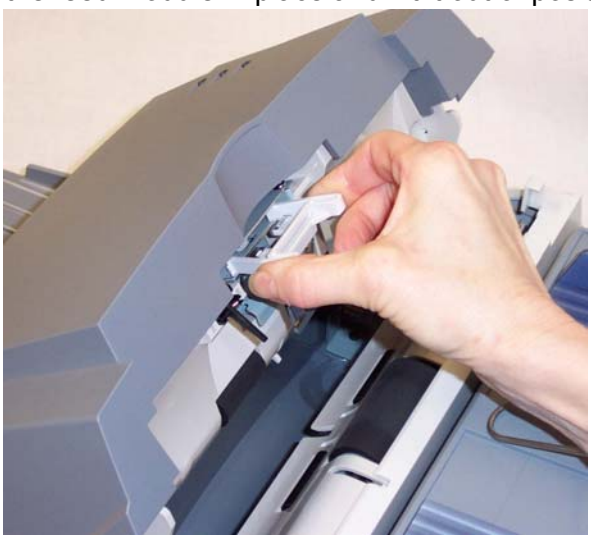
2. With a roller cleaning pad, wipe the feed rollers from side to side. Rotate the feed rollers to clean the entire surface.

IMPORTANT: The roller cleaning pad contains sodium lauryl ether sulfate which can cause eye irritation. Refer to the MSDS for more information.

3. Dry the feed rollers with a lint-free cloth.

Cleaning the feed module

1. Remove the feed module by squeezing the plastic clamps that hold the feed module in place and lift it out of position.



2. Wipe the feed module from top to bottom with a roller cleaning pad.

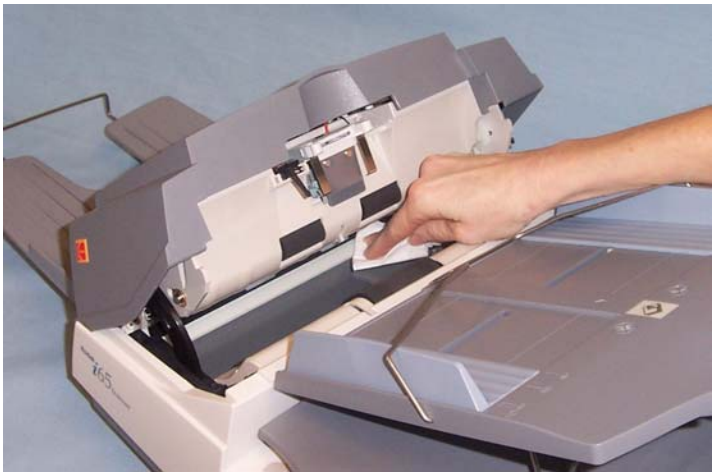
3. Reinstall the feed module by pushing the feed module into position aligning the feed module into the slots until it snaps into place.

Cleaning the imaging area

1. Remove dust and debris from this area by using a Staticide wipe or a small brush. Be careful not to scratch the glass when cleaning.

   Use caution when cleaning the upper and lower white background strips. Be careful not to catch the small black tabs with the Staticide wipe. These tabs are fragile and can bend or break.

   IMPORTANT: Staticide wipes contain isopropanol which can cause eye irritation and dry skin. Wash your hands with soap and water after performing maintenance procedures. Refer to MSDS for more information.



2. Wipe the imaging area again with an almost-dry Staticide wipe to remove any streaks.
3. When finished, close the ADF cover.

Cleaning the platen glass

To clean the smudges and fingerprints on the platen glass:

1. Open the flatbed cover.
2. Wipe the flatbed platen glass with a fresh Staticide wipe.
3. Wipe the flatbed platen glass with a dry Staticide wipe.

Replacement procedures

This section provides procedures for replacing the following parts.

- **Feed module** life varies depending upon paper types (chemically treated papers), environment and cleanliness.
- **Paper Feed roller** life varies depending upon paper types (chemically treated papers), environment and cleanliness.
- **Input tray** and **flatbed cover** only needs to be replaced if they get damaged.

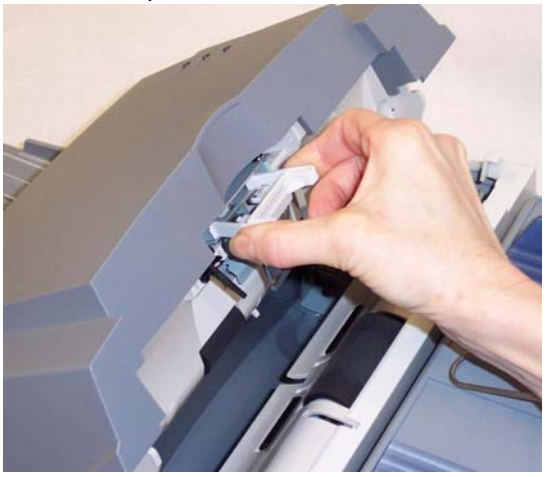
Replacing the feed module

Degradation of feeder performance, multiple feeds, stoppages, etc. indicate a need to change the feed module. Failure to clean regularly, and/or use of non-recommended cleaning solvents can shorten the feed module life.

For additional feed modules, see the section entitled, “Supplies and consumables” later in this chapter.

1. Open the ADF cover.

2. Squeeze the plastic clamps that hold the feed module in place and lift it out of position.

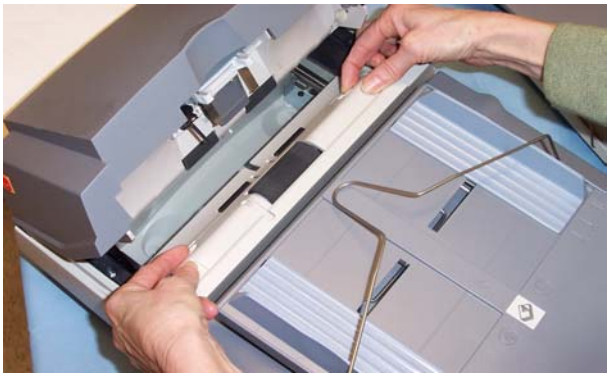


3. Push the new feed module into position, aligning the new feed module into the slots, until it snaps into place.
4. Close the ADF cover.

Replacing the paper feed roller

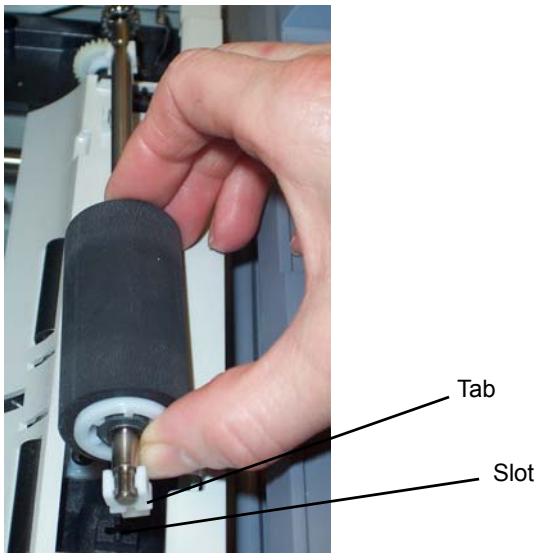
1. Open the ADF cover.

2. Lift the tabs and remove the paper feed roller cover.



3. Remove the paper feed roller.

4. Insert the new paper feed roller by aligning the tabs into the slots and pressing the roller into place.



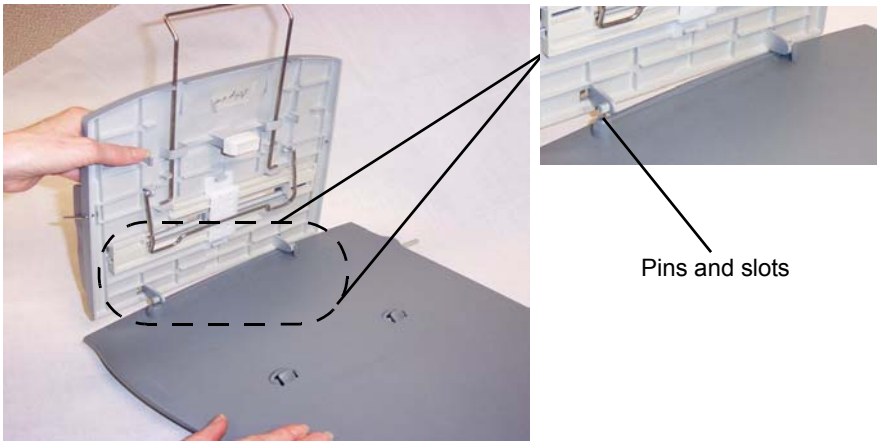
5. Reinsert the paper feed roller cover and snap it into place.
6. Close the ADF cover.

Replacing the input tray

If the input tray needs to be reinstalled or replaced, use the following procedure:

1. Remove the flatbed cover from the scanner by lifting the flatbed cover straight up.

2. Raise the input tray as shown and gently lift the input tray out of the slots.



To install a new input tray

1. Align the pins on the input tray with the slots on the flatbed cover (as shown in the illustration above) and push the input tray into place.
2. Lower the input tray against the flatbed cover.
3. Replace the flatbed cover on the scanner.

Replacing the flatbed cover

If the flatbed cover needs to be reinstalled or replaced, use the following procedure.

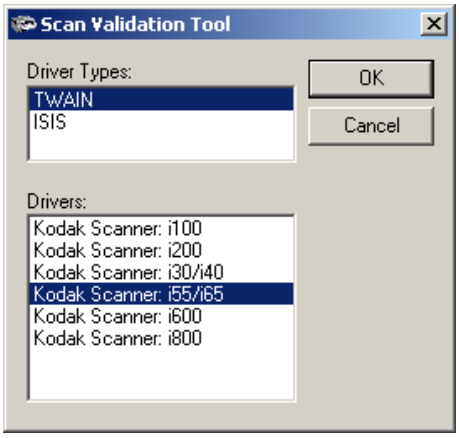
1. Remove the flatbed cover from the scanner by lifting the flatbed cover straight up.

2. Install the new flatbed cover by aligning the pins into the holes on the scanner base and setting the flatbed cover into place.

Locking the scanner

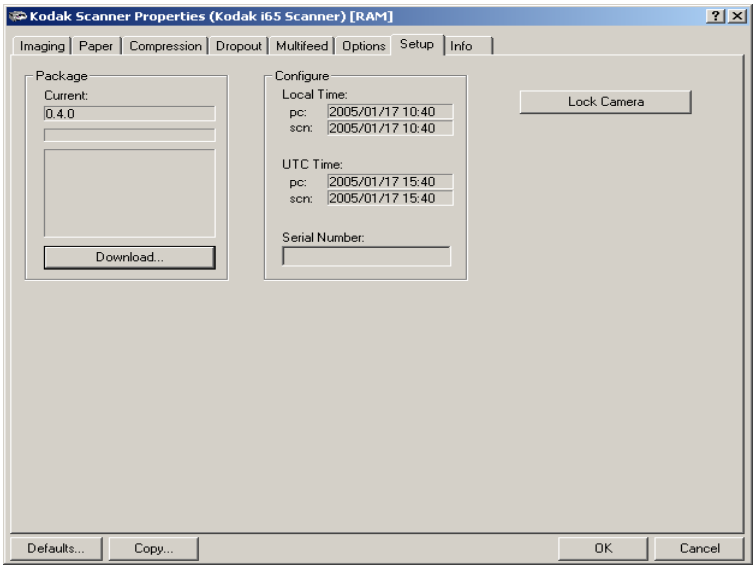
The TWAIN Datasource provides a **Lock camera** option which moves the camera into position before physically locking the scanner with the shipping switch. ISIS does not provide this option. For TWAIN datasource users follow the procedure below.

1. Turn on the host PC and start the Scan Validation Tool.



NOTE: For detailed instructions on starting the Scan Validation Tool, see the section entitled “Starting the Scan Validation Tool” in Chapter 4, *Image Processing*.

2. Access the Setup tab and click the **Lock Camera** button.



The following messages will be displayed:

3. Click **OK** on both messages.
4. Lock the scanner by moving the shipping switch (located at the bottom of the scanner) back to the locked position.

Supplies and consumables

Contact your scanner supplier to order supplies and parts.

Description	CAT No.
Kodak Feed Module	162 3362
Kodak Digital Science Roller Cleaning Pads	853 5981
Staticide Wipes for *Kodak* Scanners	896 5519
Kodak i55/i65 Feed Roller Kit	154 4303

6 Troubleshooting

Occasionally you may encounter a situation with your scanner where it may not function properly. Refer to the information in this chapter to help you resolve the situation before calling Technical Support.

Indicator lights and error codes

The indicator lights provide information on the current state of the scanner.

Flashing green: indicates the scanner is warming up from a power saving mode and preparing to scan.

Steady green: indicates the scanner is ready to scan.

Flashing red: indicates a scanner error, such as the ADF cover is open.

Clearing a document jam

If your scanner stops scanning due to a document jam, follow the procedures below:

1. Open the ADF cover.

2. Remove any jammed documents from inside the scanner.
3. Close the cover.

Getting service

If your scanner needs service, go to the website at:

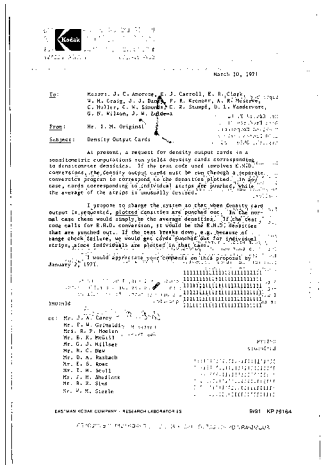
www.kodak.com/go/docimaging

There you can find out how best to obtain service for your scanner for your region.

Problem solving

Use the chart below as a guide to check possible solutions to problems you may encounter when using the *Kodak* i55/i65 Scanner.

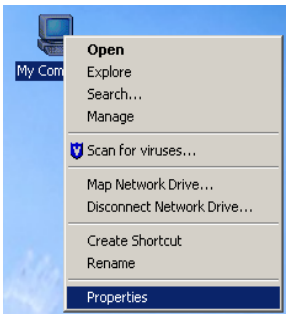
Problem	Possible Solution
Scanner will not scan; no LED display	Make sure that: • the power cord is plugged securely into the back of scanner and the wall outlet. • the power light is illuminated on the power supply. • the power switch is on. • the wall outlet is not defective (call a licensed electrician). • the PC and/or the scanner was not restarted after installing the software.
Image quality is: • poor • decreased • lines or streaks	• Clean the imaging area. See the procedures in Chapter 5, *Maintenance*.
Documents are jamming	Make sure that: • the input tray and side guides are adjusted for the width of the documents you are scanning. • the output tray is adjusted for the length of the documents you are scanning. • all documents meet the specifications for size, weight and type as outlined in the section entitled, “Document preparation”. • the scanner is clean. • the feed module is installed properly and securely in place.
When the scanner is powered up, it makes noise and does not come to the Ready state.	• The shipping switch was not unlocked. Unlock it. See the section entitled “Unlocking the scanner” in Chapter 2. • The scanner is not located on a level surface. This may cause the scanner to function improperly.
You can specify an image from the scanner, but the scanner or computer crashes when scanning.	• Verify that the SCSI or USB cable is plugged in correctly. • Only two SCSI terminators can be connected to the SCSI chain: one is at the end of the SCSI device and the other is already in the host adapter. • Verify that the SCSI terminator is ON if the scanner is the last device on the SCSI chain. See the section entitled “SCSI connections” in Chapter 2. • Verify if more than one item on the SCSI chain has the same ID. See the section entitled, “SCSI connections” in Chapter 2.
Distorted images	The feeder holds up to 50 documents in the input tray. While scanning is taking place, you cannot add documents to the feeder. If you do add documents, your images may be distorted.
No images are being displayed	• Documents should only be inserted in the feeder after the scanner is powered up and ready. If you place documents in the input tray before the scanner is powered up, the documents will be fed, but no images will be displayed. • Be sure that the text side of the documents are placed toward the feed tray (not facing you). For more information, see the section entitled, “Scanning your documents” in Chapter 3.

Problem	Possible Solution
Image has clipped corners 	If your images have clipped corners, the skew angle was too large for the scanner to handle. • Be sure documents are placed in the input tray with the edges aligned and the side guides positioned correctly to accommodate the size documents you are feeding to avoid large skew angles. • If you are scanning large stacks of documents, separate the documents into smaller stacks.
Images are not being cropped correctly	If **auto** or **aggressive cropping** is enabled, and your images are not being cropped correctly, clean the white background strips in the imaging area. • See the procedures in Chapter 5, *Maintenance* “Cleaning the imaging area”. If you are scanning images that are smaller than 9.4 x 14 cm (3.7 x 5.5 in.) documents may intermittently be cut off. • Do not use **auto** or **aggressive** cropping.
Roller marks appear on the document after scanning	Clean the rollers. See the procedures in Chapter 5, *Maintenance*.
Images have black background bleed-through 	When scanning translucent documents, black bleed-through may be displayed on the image. To minimize this, adjust the Contrast value or select Fixed Processing to improve the image. For more information on Contrast and Fixed Processing, see Chapter 4, *Image Processing*.

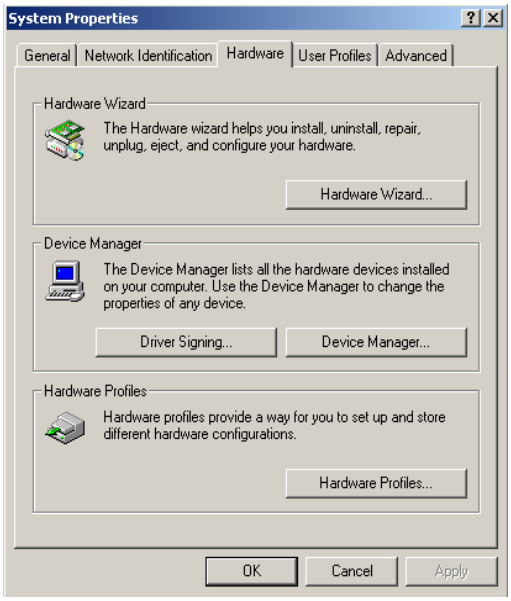
Scanner not working

If your scanner is not working, you may need to reinstall the drivers. To verify this:

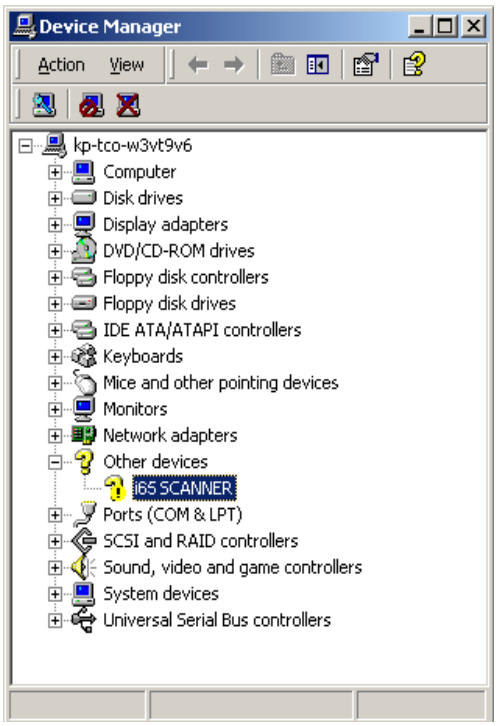
1. Click the **My Computer** icon and click the right mouse button.
2. Select **Properties.**



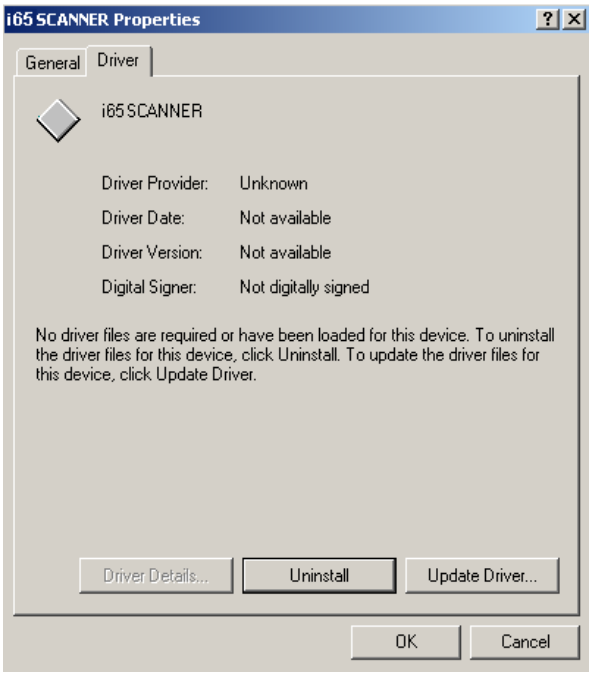
3. Click on the **Hardware** tab and select **Device Manager.**



4. From the Device Manager screen, select **Imaging devices**. If the *Kodak* i55/i65 Scanner appears with a **?** before the name, you need to reinstall the driver software.



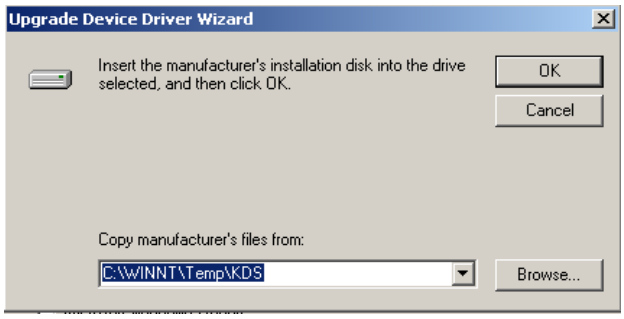
5. Double-click on the *Kodak* Scanner i65 (or i55). The Scanner Properties dialog box will be displayed. Select the **Driver** tab.



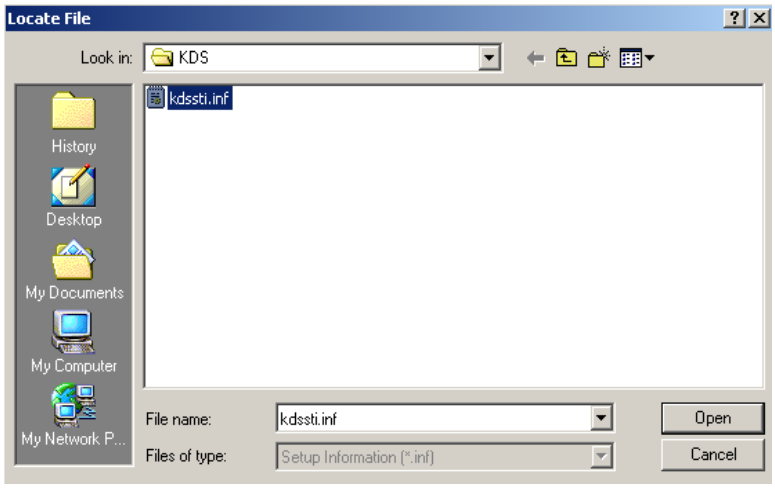
6. Click **Update Driver**. The Upgrade Device Driver Wizard will be displayed.

7. Click **Next**.

8. Click **Next**.



9. Insert the Kodak Installation CD in the CD-ROM drive and locate the KDS folder. Locate and select the kdssti.in file.



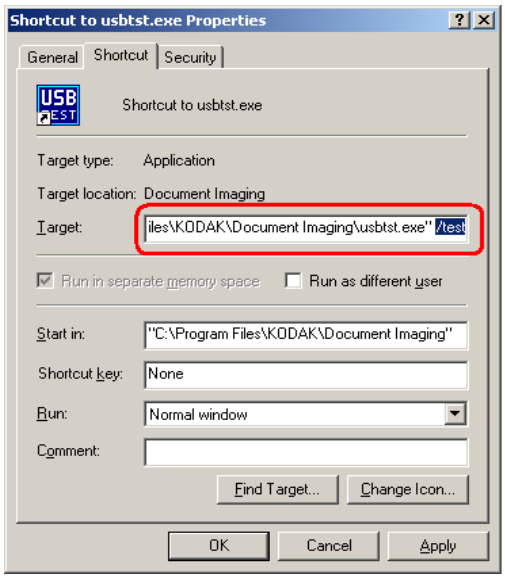
10. Click **Open** and proceed with the prompts to install the driver.

Testing for a USB connection

When the Kodak device drivers for the *Kodak* i55 and i65 Scanners are installed, a copy of the USB test software will also be installed. It will be located in this folder by default along with the *Kodak* Scan Validation Tool software:

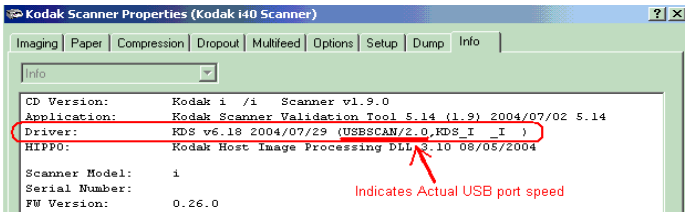
C:\program files\Kodak\Document Imaging\usbtst.exe

If you run this executable (usbtst.exe), it will display a set of USB values and protocols. At this time, the software application will function in all operating systems, but will only be valid with the Windows XP system.



If a shortcut of the executable is created, and the **/test** switch is added to the end of the **"Target:"** path (to the right of the quotes), then when it is launched from the shortcut, it will run the dialog boxes as listed above and function accordingly with all the operating systems.

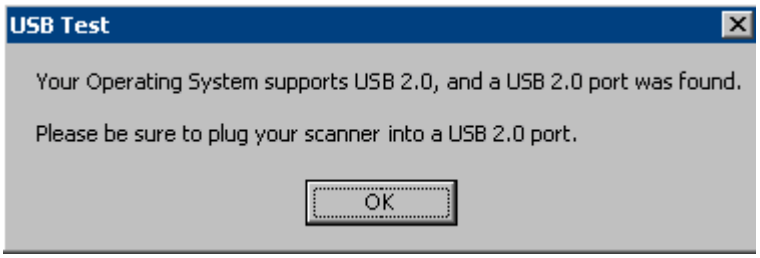
To verify USB port speed with the scanner, run the Scan Validation Tool software, and select the Info tab. **USBSCAN/x.x** will be displayed in parentheses in the **Driver:** box. **x.x** is the speed the scanner is actually communicating.



USB connection issues

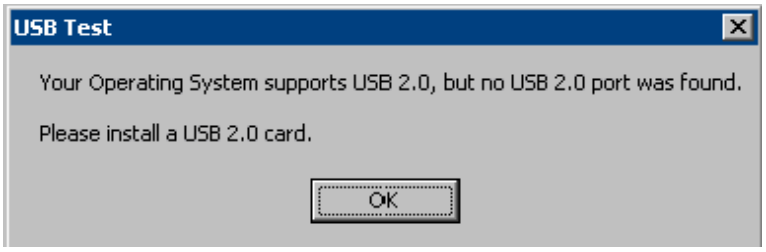
The USB verification tool will check your operating system and hardware capability to determine if you have a functioning USB 2.0 or if you need to install a USB card.

Your operating system is correctly configured to support USB 2.0.



If a functioning USB 2.0 port is present, this dialog box will be displayed.

Your operating system supports USB 2.0, however, a USB 1.1 port was found



- If your PC does not have a USB 2.0 port installed, install a USB 2.0 Accessory card.
- If a USB 2.0 port or card is installed and the USB test tool does not recognize the USB card as 2.0, install or update the drivers for that card.

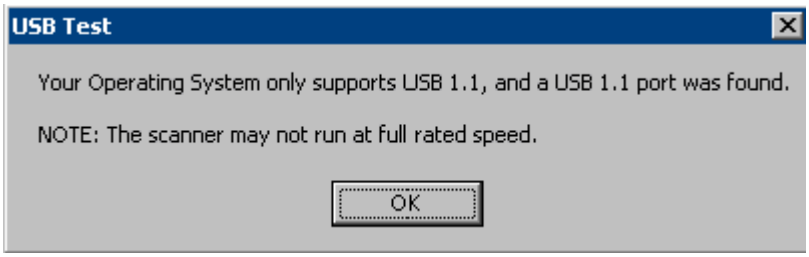
Your operating system only supports USB 1.1

There are some host PC operating systems that do not support USB 2.0, but support USB 1.1 (e.g., Windows 98SE). The *Kodak* i55 and i65 Scanners are rated and designed to operate with USB 2.0, but will function in a USB 1.1 port, however, the scanner will only perform at a USB 1.1 speed.

Solutions:

- Update your operating system to one that supports USB 2.0, such as, Windows 2000 or Windows XP.
- You may add a USB 2.0 card but will function only as a USB 1.1.

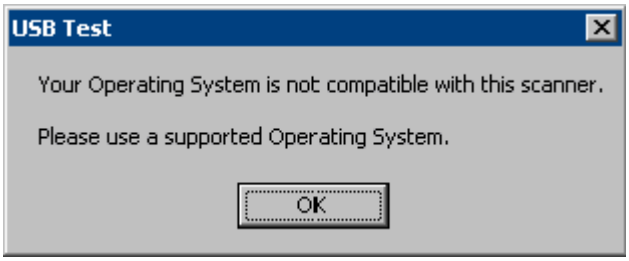
You do not need to install any additional USB card(s)



The host PC operating system only supports USB 1.1 and does not support USB 2.0, but it found a USB port. The *Kodak* i55 and i65 Scanners are rated and designed to operate with USB 2.0, but will function in a USB 1.1 port, however, the scanner will only perform at a USB 1.1 speed.

Solution: Update your operating system to one that supports USB 2.0. such as, Windows 2000 or Windows XP. You can also verify what the scanner port speed is running at by using the Scan Validation Tool application with the scanner.

USB will not work



This operating system will **not** support a USB port. It is recommended to upgrade the operating system to support USB, such as Windows 98SE, Windows 2000 or Windows XP.

Appendix A Specifications

Scanner Type/Speed	• i55 Scanner: simplex color scanner with an automatic document feeder, 32 pages per minute (portrait), 200 dpi, bi-tonal • i65 Scanner: duplex color scanner with an automatic document feeder, 32 pages per minute (portrait), 200 dpi, bi-tonal
Scanning Technology	CCD type Grayscale output bit depth is: 8 Color capture bit depth is: 48 Color output bit depth is: 24
Output Resolutions	75, 100, 150, 200, 240, 300, 400 and 600 dpi
File Format Output	BMP, TIFF, JPEG, PDF (with bundled software)
Scan Area	**Automatic Document Feeder:** • **Maximum** — 21.6 x 86 cm (8.5 x 34 in.) when the host PC is configured with adequate memory. • **Minimum** — 9.4 x 14 cm (3.7 x 5.5 in.) **Flatbed:** Up to 21.6 x 29.7 cm (8.5 x 11.69)
ADF Capacity	50 sheets (A4, 20 lb. paper)
Recommended Daily Volume	1,500
Illumination	Cold Cathode Fluorescent
Electrical requirements	100 - 240 V AC, 50/60 Hz
Scanner Dimensions	**Height**: 19.9 cm / 7.8 in. **Width**: 56.7 cm / 22.3 in. **Depth**: 35 cm / 13.8 in.
Scanner Weight	*Kodak* i55 Scanner: 6.7 kg / 14.8 lbs. *Kodak* i65 Scanner: 7.5 kg / 16.5 lbs.
Host Connection	USB 2.0 or SCSI II
Operating Temperature	10°C to 35°C (50°F to 95°F)
Humidity	20 to 80%
Environmental Factors	Energy Star qualified scanners
Scanner Power	Voltage: 24.0 Vdc; Current: 2.0 A
Power Consumption	i55 Standby: <20 watts i55 Running: <30 watts Sleep mode: <12 watts i65 Standby: <30 watts i65 Running: <40 watts Sleep mode: <12 watts
Acoustic Noise (Sound Power level)	Operating: less than 58 dB Standby: less than 46 dB

Appendix B Warranty Information - United States

Warranty

Subject to the WARRANTY LIMITATIONS herein, Kodak warrants its products to function properly during the warranty period. Warranty period starts from the date of initial installation, when installed within one year from date of shipment. (If the purchase price does not include installation, the warranty becomes effective 14 days from date of shipment). KODAK warrants that Product shall conform to the applicable specifications separately provided by KODAK and shall be free from manufacturing related defects in materials and workmanship. The warranty covers the purchaser of the equipment, as well as anyone else who owns it during the warranty period.

Warranty repair coverage

If the product does not function properly during the warranty period, Kodak will provide for telephone support and/or on-site maintenance, including any adjustments and/or replacement of parts, [except Image Maintenance Kits, supply items and consumables, such as disc, paper, ribbons, print heads, feed rollers and all other items as referenced in the Manufacturer's Manual(s)] required to maintain Products in an operating condition which is consistent with Manufacturer's published specifications, without charge during Kodak's normal working hours (usually 8:00 a.m. to 5:00 p.m., Monday through Friday). Parts removed from the product and replaced at no-charge will become the property of Kodak.

How to obtain service

Call Kodak's Customer Support Center at 1 (800) 356-3253. The Equipment Service Identifier (Kodak K-number located on the equipment) must be provided.

Warranty limitations

A. Circumstances beyond Kodak's control (such as Customer overriding, bypassing or defeating interlock switches on Products).

B. Misuse, abuse, failure to follow Manufacturer's Product operating instructions.

C. Warranty service is limited to the United States.

KODAK MAKES NO OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO THE WARRANTY OF MERCHANTABILITY OR THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE FOR THIS PRODUCT.

REPAIR OR REPLACEMENT WITHOUT CHARGE ARE KODAK'S ONLY OBLIGATIONS UNDER THIS WARRANTY. KODAK WILL NOT BE RESPONSIBLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES RESULTING FROM THE SALE, USE, OR IMPROPER FUNCTIONING OF THIS PRODUCT, REGARDLESS OF THE CAUSE. SUCH DAMAGES FOR WHICH KODAK WILL NOT BE RESPONSIBLE, INCLUDE, BUT ARE NOT LIMITED TO, LOSS OF REVENUE OR PROFIT, DOWNTIME COSTS, LOSS OF USE OF THE PRODUCT, LOSS OF DATA, COST OF ANY SUBSTITUTE PRODUCT, FACILITIES OR SERVICES OR CLAIMS OF CUSTOMERS FOR SUCH DAMAGES.

This limitation of liability will not apply to claims for injury to persons or damage to property caused by the sole negligence or fault of KODAK or by persons under its direction or control.

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A-61527 5/2005
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